The Builder.

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English Artisans on the Paris Exhibition.

VERY remarkable book has been published; a book likely, if we mistake not, to effect a considerable amount of good.* It will be remembered that the Society of Arts raised a subscription with the view of sending to Paris a certain number of selected workmen, each of whom on his return, was to make a report of what he had observed during his stay, in reference to the special industry in which he was engaged. H.R.H. the Prince of Wales aided, and the Privy Council Committee on Education, offered 500*l.* towards the intention, provided that the Society raised at least the same amount by voluntary subscriptions.

The sum subscribed amounted to 1,039*l.* 19s. 6d., which enabled the council to assist upwards of eighty skilled workmen, representing the principal industries of the country, to visit Paris, and to examine the quality and cost of the work executed in their respective trades by the best workmen of foreign countries.

The council received valuable co-operation from the Chamber of Commerce in Birmingham, who subscribed to the fund and recommended twenty-five workmen and foremen to represent the various branches of trade carried on in that district. The visit of the workmen from Birmingham was organised by a local committee, who received valuable aid from Mr. W. C. Aitken. The various reports sent in, edited by Mr. Charles Critchett, the assistant-secretary of the Society of Arts, are now before us. All such forms of expression as, though not strictly in accordance with grammatical rules, appeared to convey more forcibly than any other the writer's meaning, were retained, and only such literal and grammatical corrections (with a few trifling omissions) have been made, we are told, as were absolutely essential. The reports bearing upon cognate branches of industry have been generally kept together. We give a list of all the writers, to mark our opinion of the credit they have done themselves and their class.

The reports, fifty-three in number, by artisans from London, Sheffield, Coventry, Bradford, Newcastle-under-Lyne, &c., are,—

Cabinet-making	Charles Alfred Hooper.
Ceramic decoration	Aaron Green.
Saws and tools	William Bramhall
Cutlery	John Wilson.
Chair-making	Benjamin Lucraft.
Glass-painting	Francis Kirchhoff.
Wood-carving	James Mackie.
,,	R. Baker.
Cabinet-work	Thomas Jacob.
Wood-cutting machinery	William Walker.
,, ,,	Thomas J. Wilkie.
The Ribbon trade	L. S. Booth.
Ribbon-weaving	Joseph Gutteridge.
Lace	Edward Smith, Joseph Bird, and George Dexter.
Hosiery	George Kendall and George Caunt.
Pottery	William Beardmore.
Tiles and Pavements	Samuel Cooper.
Terra-cotta	Michael Angelo Pulham.
Pottery and porcelain, with some notes on iron manufacture	John Randall.
Bricklaying	George Howell.
,,	John Jeffery.
Plasterers' work	C. Bartlett.
Carpenters' and joiners' work	T. W. Hughes and John D. Prior.
Joiners' work	Alexander Kay.
Masonry, &c.	George Broughton' Forbes and John McEwen.
,,	Thomas Connolly.
Coach-making	Thomas Magrath.
Ship-building	E. F. Mondy.
Mining and metallurgy	Francis Oats.
Silver-work	P. A. Rasmussen.
,,	George Page.
Silver chasing	R. E. Barrett.
Hammered iron	William Letheren.
Ornamental wrought iron-work	T. Winstanley.
Ivory-carving	Joseph Bentley.
Engraving	G. Berry.
Die-sinking especially adapted to silversmiths and other metal trades	William Elliott.
Watch-making	John Gregory and James Stringer.
The Horological Department	Hermann F. Jung.
State of the watch trade	George Cook.
Tailors' work	R. Sinclair.
Book-binding	Louis Genth.
Leather-work	Walter Blunt.
The manufacture of caoutchouc	William Bourne.
Figured shawls	Samuel Boast and John Appleton.
Machinery for worsted fabrics	John French.
Worsted yarns and textile fabrics	George Spencer.
Worsted and mixed textile fabrics	Daniel Illingworth.
French horticulture	George Stanton.
Mechanical engineering	John Evans.
,, ,,	William Learmouth.
The condition and habits of the French working classes (special report)	Robert Coningsby.
,, ,,	Richard Whiteing.

The reports, twenty-nine in number, by artisans from Birmingham, are,—

Introductory Report	Mr. W. C. Aitken.
Gas-fittings and chandeliers	James Taylor.
Plumbers' brass foundry	Thomas Bayley.
Cabinet brass foundry, &c.	William Gorman.
General brass foundry	Henry Dry.
Church bells	James Ansell.
Tubes in all metals	John Fisher.
Saddlery, &c.	John Clay.
Leather, harness, saddlery, whips, portmanteaus, &c.	Frederick Thompson.
Jewelry, with diamonds and precious stones	W. G. Deeley.
Jewelry and gilt toys	James Plampin.
Buttons	Thomas Johnson.
,,	S. W. Richards.
,,	William Bridges.
Steel pens	J. L. Petit.
Small arms, &c.	Charles Hibbs.
Papier-mâché	David Sarjeant.
Japanning in general	Thomas Archer.
Needles and fish-hooks	William Guise.
Sheet and plate glass	Richard Pearsall.
Table and fancy glass	Thomas C. Barnes.
,, ,,	W. T. Swene.
,, ,,	T. J. Wilkinson.
Die-sinking	Charles Wm. Moore.
Electro-plate	Henry J. Fellows
Tin-plate working	Edwin Poole.
Labour-saving machines	Henry Fowler.
Railway carriage and wagon building	Benjamin Whitehouse.
Design	Frank J. Jackson.

It is scarcely necessary to say that some of the writers, when they make comparisons, do so without full knowledge of both sides,—several of them of either side. A large amount of common sense, however, is shown by the great majority, and what they have said should set many of their fellow-workmen thinking. The writer of the report that stands first, C. A. Hooper, goes into raptures with all he sees and finds every comparison very disadvantageous to his countrymen, of whom he has, seemingly, but a poor opinion. On the road, when in Paris, he meets a van full of joyous workmen in blouses,—

> "They are singing French songs; the van is hung round with Chinese lanterns; they are going home, sober and happy, from some excursion. I think for the moment of a similar scene in London; had they gone through Holborn in this same manner, hundreds of boys would have followed and roared and shouted, and would have smashed every lantern on the van; here the people simply looked and smiled as they passed. Again, I thought of a party of British workmen returning from a bean-feast, as I have often seen them, roaring drunk, swearing, and bawling, and stopping at every 'public' to drink, and 'drive dull care away.'"

The carving seems to him wonderful: it must have "grown into shape and form." In the workshops of London they have foremen and overlookers who wear fine cloth, and decorate their persons with jewelry, and to whom they are expected to look up as to some one very superior. In Paris the foreman appeared in the same garb as the men—the blue blouse common to both; each one treated the other with proper respect, as became the office he fulfilled; you were not disgusted with either the pride of the one or the degrading servility of the other; each man knew his place and kept it. Oh! I many times while in Paris blushed for my countrymen!" He often asked himself, "Where are the Paris roughs?" Everybody was not only smooth, but highly polished. In Paris the man in his blouse could sit and enjoy the society of the upper class in a grand *café*; but he is not at all surprised that it is not so in England, because there are people in his own trade with whom he finds it impossible to associate out of the shop; how much more were they separated from the educated and refined. "The great fault must be in the training of the people." To him the life of a Parisian workman appeared to be all happiness. And then every one behaved to him so well.

The question naturally arose, what is the cause of this marked difference between us and them? and his reply is, we want in our country a system of "national education," free from all sectarianism, and entirely secular, leaving every one to exercise his own judgment in religion, and to worship God according to his own conscience. Let us have free access, Sundays and week-days, to all the national institutions. Let there be no restraint on rational, healthful, innocent recreation, and let us have this always encouraged. Let Government restrictions be put upon, and strongly enforced against, every thing and every place of a vicious, low, or degrading nature.

The next writer, Aaron Green (Ceramic Decorations), takes a cooler and deeper view, as do the majority of those who follow. Mr. Green, with due admiration of what is done in Paris in his department, maintains the excellence of the English works, and denies the truth of the assertion that has been made that "the best specimens exhibited by English manufacturers are painted by French and even German workmen": and that in "elegance of outline and delicacy of tint these artists excel all rivals."

> "Is it true that our artistic deficiencies are really so great? My answer is, no. And in corroboration of my opinion, I beg to refer to remarks made by J. C. Horsley, R.A., who, in his report, published in the *Illustrated London News* of August 17th, says:—'In porcelain painting there is nothing better than the works of Allen, Mitchell, and Simpson, artists employed by Minton.' Now, these are all of them Staffordshire men, born within three or four miles of the manufactory where they are now employed. Another witness to this fact is found in Leon Arnoux, esq., himself a Frenchman, and one who knows more than any living man of what Minton's workmen are capable. What does he say? Why, I find in his report published in the *Illustrated London News* of September 14th, the following, when speaking of Minton's productions:—'But the best things in their glass cases are the many vases of soft porcelain with figure paintings. The largest pair, in *bleu-de-roi*, representing the toilet and birth of Venus, are from original paintings by François Boucher; they exceed in size all other vases produced in the soft material; they have been very successfully painted by Messrs. Allen and Mitchell, the same artists who have executed the painting on an Italian pair of vases decorated with a frieze of young Cupids playing in a picturesque landscape."

William Bramhall, speaking of saws and tools, thinks England is still in advance of France, Belgium, and Germany for the highest excellence in the perfection of model and of a cutting edge in saws and tools (without regard to their price), principally owing to the finer quality of the steel and greater care in their grinding, having greater natural advantages for superior grinding and facilities for power. The same does not apply to American tools, however, axes more especially, which for exactitude and finish have the appearance of being die-struck, so uniform are they in every respect. They are models of their kind, and show the grit of the Old Country in their formation, *minus* the prejudices that

* Reports of Artisans, selected by a Committee appointed by the Council of the Society of Arts to visit the Paris Universal Exhibition, 1867. London: Bell & Daldy.

cling to us, and having a freer scope for individual exertion.

One peculiarity in Paris he finds is the giving of a share of the profits to all employed, — to those who conduct themselves properly and respectfully to their fellow-workmen as well as to their employers. Another is the development of "speciality," or a gift for a particular kind of work. A man or boy is encouraged to express his likings or dislikings for his employment; and it is no rule that because his father was a chimney-sweeper he must through life pursue the same vocation. "If he has the ability to command an army there is a place for him in prospect. One of the leading French generals is of humble origin. Worthy sons of labour, who strive for progress, are recognised, honoured, decorated, and pensioned."

He finds the general domestic condition of the French *ouvrier* greatly inferior to that of the British workman. If we speak of him with regard to his family comforts, adjudged by the English standard, "home he has none." There is not a word in the French language which can express the idea of an English home, for the best of reasons—the idea has never been conceived.

"We have said of the *ouvrier*, 'home he has none;' but he has a French home, which is eight stories high,—as on Boulevard Richard Lenoir and numerous other places,—in 8 ft. square, and he pays eight francs per fortnight for the accommodation, and must carry his muddy water,—which he has previously bought,—and all he needs, to his sky-high chamber, and must bring all his refuse down from that elevation; and he is in good quarters when he is thus located. He has a little bed that turns up, and a little table that lets down, which must be done alternately each night and morning in order to make room. He has a couple of small chairs, as many basins, plates, knives, forks, and table-spoons; a *pot à feu*, a tree planted in a tasty pot if possible, and a bird in a cage, nearly comprise his household goods. One suit of clothes, with blue cotton overalls, and a change of under-linen, constitutes his wardrobe (he is substituting leather shoes for wooden sabots); he has a perforated tree-pot for a stove, and with this, with a basinful of charcoal and charcoal dust, whose fumes are poisonous, he must cook his Christmas dinner; and his condition is improved, for are there not lavoirs, or washing-houses, where his wife can wash for the public, if she does not work at anything else?"

Instead of envying them, he has to report upon the inferior condition of our Continental fellow-labourers, with deep thankfulness that "we are not as other men are."

Benjamin Lucraft, writing of chairmaking, arrives at the conclusion that, with the single exception of France, but little or no progress has been made since the Exhibition of 1862. As to Great Britain, without the least doubt or hesitation, yet with the most profound regret, he says, our defeat is as ignominious, and, he fears, disastrous as it is possible to conceive. He feels that the art-workman of France has a great advantage over those in England. In Paris they are surrounded by works of that kind which none but the most obtuse can long remain uninfluenced by. Their museums and palaces are central, and most numerous; their decorations and furniture are of the highest order, and nearly always open to the people.

"Do our aspiring artists take up their abode in Rome on account of the climate? Not a bit of it: there they are surrounded by works they venerate and love, and their very nature gets impregnated with them. But I do not want London knocked to pieces to make a city of palaces, that the people may acquire a taste for things lovely to the eye; still, something must be done, or the working classes of this country will be grievously wronged, and the whole nation suffer."

He would have the council of the Society of Arts use its influence with her Majesty's Government for the establishment of local museums of art-manufacture, with lecture-halls, libraries, and other necessary adjuncts and appliances for the use and instruction of the people, and open at such hours as would suit their convenience and opportunities for going, which, as a matter of course, is in the evening, when lectures by competent men would be largely attended.

Many of the other reporters dwell on the desirability of establishing museums and lectures, for which we have ourselves called for years. Nevertheless, we must say that, besides the museums and means of study, we want, on the part of workmen, a determination to use them. They do not at present avail themselves of the opportunities the schools of art, and such collections as the Architectural Museum, afford, to the extent they should.

Mr. Lucraft inquired particularly into the apprenticeship system. Seeing some lads at work with the men in a carver's shop, he went to the bench of one about fourteen: he was carving a chair-back of a Mediæval pattern from a working drawing: it was nearly finished, and well carved. Finding, from inquiry, that he had done the whole himself, he expressed his surprise that one so young was found capable of carving so well; and was informed that boys at school were specially prepared for the trade they fancy, or that their friends have decided upon for them; so that a boy about to be apprenticed to learn carving, is instructed in ornamental drawing, modelling, and designing. Three or three years and a half is the longest time they serve. It would be a good law, he thinks, for this country, that prohibited the binding of any one for more than four years; our young men of seventeen or eighteen would then be better instructed than they are now at twenty-one;—not simply by binding them only for four years, let us interpolate.

Francis Kirchhoff, as to glass-painting, is of opinion that the French work, when compared with the English, shows a greater diversity of design in construction, and more freedom and grace in the drawing of the ornament; but that, in excellence of colour and pleasing harmony, the English glass is much superior.

James Mackie, after giving an account, according to his light, of the wood carvings in the Exhibition, speaks of the art-education of the carver, and sees that the inquiry proposed occupies too large a field for one whose personal observation and experience are confined to England and a short stay in France, and therefore that he must look solely to those countries—France in particular deserving our best attention.

The people of France are in the midst of glorious monuments of grandeur and beauty bequeathed to them by their forefathers. The people appreciate them, and industriously and intelligently continue to build up and still further beautify the great edifice of art. The architecture of Paris is a great school, and the student who enters daily receives valuable instruction. It would seem almost impossible, he thinks, to be in the midst of so many examples and not grow up imbued with a love for, and also instructed in, the art of carving. Fine and well-carved oak doors are to be seen of a character we never see publicly exposed in England. The stone carving is good and well finished; and by the circumstance of its thus being side by side with the wood, the quality of the latter must, he maintains, be greatly and beneficially influenced.

He visited the *École Impériale Spéciale pour l'Application des Beaux Arts à l'Industrie*. On that occasion there was an exhibition of the works of the students, and the number and variety were considerable and interesting. These studies were little more than good sketches in clay, but it was evident that the students were learning a most useful lesson, that would stand them in good service when they went forth into the world. It seemed abundantly clear that the system pursued was simple and rapid, and that the teaching and practice produced valuable results. "It seems to have great vitality, never being without deep and varied interest to the students, features that should distinguish every school, and without which they will assuredly fail in accomplishing the objects sought to be attained. This system of being content with good sketching in all branches of instruction in art seems to be the life and soul of art as applied to manufactures; good sketching is acquired, and as few will require to gain a subsistence by making finished pictures, a valuable and sufficient power is gained that is always in great request and is never lost."

If a workman desire to study animal and vegetable life in connexion with his art, the entrances of the Jardin des Plantes are free to him and the public at all times. This is a great advantage. Galleries being open on a Sunday, he considers, must have considerable influence on the taste.

From what could be gathered, piece-work seems to be the prevailing system, and by the workmen is preferred to journey-work, or payment by the hour or day. In the piece-work system there is a liberty that is very precious to Frenchmen. However valuable machinery may be, our French brethren consider that their faculties are such as to make them very different things to a mere tool, or a convenient piece of mechanism.

Much of the inferior work in Paris is badly paid for, and the pay is said to be less than is given in England for a similar class of work; but the good average workman, and particularly the superior workman, is paid in accordance with a scale of remuneration that is much higher than that which prevails amongst us. "A franc an hour, and sometimes more, is a very general price, whilst piece-work is much more remunerative."

"To sum up, it is asserted by Englishmen well acquainted with the Paris workshops, and also by French workmen, that our system requires great alterations, and, among other things, piece-work, where practicable, should be substituted for journey-work, paying more liberally,—not adhering to a level scale of remuneration, which is alike assented to by both employers and workmen, amongst us,—letting each gain that which his unfettered hands will obtain. Not till then will our work be characterised by anything but dearness and mediocrity. To keep down energy by insufficient remuneration, is to establish a class of dull workmen, who will never give us good art. To insist upon long hours of labour, with no leisure or holidays, will not give facilities for study, or enable the workman to enlarge his store of knowledge, or give him that interest and pleasure in his labour without which no great success can be expected."

With regard to the associations of the workmen, he could learn but one or two facts. The carvers are associated together, numbering several hundreds. The members consist of workers in both wood and stone, but principally wood, and also modellers. Their objects are to promote the exchange of friendly sentiments, furnish trade information to each other, and especially to the unemployed. They have also taken in hand the subject of wages. Having found that some of the Paris shops were paying a very low rate of remuneration, it was determined to ask for an increase of 20 per cent.; and the demand was acceded to in each case.

He feels that the education of the workman is of primary importance. Our schools have rendered valuable service, and much of our progress is traceable to their influence; but they are capable of doing more, if only a new life be infused into them. Our great buildings are full of excellent examples, which deserve to be more studied than they are. In our museums and galleries there are splendid examples of art that, if studied, would work wonderful changes in our taste and power. He knew that they were not esteemed as they should be, and also that they were not so accessible as they should be. "Establish more museums of industrial art, be they ever so small, and let them be open at convenient hours and days for the artisan class. Let the architects look to the carving that is being done in our new London, for much of it is a scandal and a disgrace to our taste, and its effects upon the carver's education are most damaging. Something better is demanded. If we are to have any art in our streets, pray let it be good and instructive." Let our system of instruction and practice at our schools be simple, inviting, and interesting; not dull, repulsive, and crushing, as it certainly has been to many. We have the stuff amongst us,—let it be cared for in a large and liberal spirit, and it will be strange indeed if the England of the future does not see something more worthy of her great name.

R. Baker, on Wood-carving, writes very well. Take a specimen:—

"In comparison with the French, the English carving is tame and spiritless; the French workman seems imbued with a true love of his art, and executes it with a warmth of feeling which gives it life and sentiment, and this gives his work its superiority. If we examine attentively a portion of French work, we find the main object of the carver is to give his work spirit and expression. Take a rose, for instance: it expresses all the characteristics of a rose; the form, the life, and even the colour is there substituted; and yet it is not the exact copy of the form of a rose, for if it was, it would look poor and lifeless, but it looks rich and full of life, and this is done with comparatively little labour. The carver must understand and feel the true spirit of the object he is carving, otherwise he may bestow much labour, and display much skill and cleverness in tooling, but his work will still be deficient in that which is essential to its artistic merit; not that there is a total absence of this artistic feeling in the English work, but they seem to have studied cutting their work sharp and clean, in preference to anything else. As a whole, the English carving is equal, and, perhaps, superior to any of their previous exhibitions. Their progress is seen not so much in what is actually exhibited, as in the almost entire absence of decidedly bad work. There is scarcely any of those tame and laborious imitations of nature which usually abound in our exhibitions; this indicates improvement in taste."

Their workshops are conducted in a manner which allows the greatest individual freedom; by conversation, and the mutual exchanging of thoughts and ideas, the workshops become an important source of information and instruction; but the most important difference, he says, between the French and English workmen is, in Paris they are paid according to their abilities; in London wages are nearly uniform [notwithstanding what Mr. Roddis said in our pages]: one encourages a man to become proficient, the other is discouraging, because he has no hopes of being rewarded for his perseverance. "As soon as a French workman shows signs of special abilities he is patronized and encouraged, and by working in accordance with his inclinations, he con-

tinually gains experience, and ultimately arrives at great perfection. In England we have no such special patronage, but spend the best part of our time in executing work repugnant to our feelings."

The writer makes the odd observation that "our architects leave the embellishment of our cities too much in the hands of the builders, who are not notorious for their refined taste. I think this is the root of our inferiority." He ought to know better than to suppose that the architects have any control in the matter.

Thomas Jacob, who reports on cabinet work, thinks a person who has once seen Paris, walked through the main thoroughfares, and visited the public buildings and churches, must feel quite contented to be beaten by a people for whom their Government has done, and is still doing, everything possible for their artistic improvement, and whose wish it seems to be that every building shall be not merely just sufficient for the purpose it is intended to serve, but, in the true sense of the word, a monument, erected and decorated without any apparent regard to cost; the material which is principally used (a white stone) having the double advantage of being quite soft, and almost as easily worked as a Bath brick when new, and of becoming as hard as a rock after being some time exposed to the atmosphere. A Parisian, he thinks, may very properly be considered to "live in a school of art; and a taste for the beautiful is so diffused amongst the people (a natural consequence), that scarcely anything is attempted that does not exhibit considerable taste. Besides the advantage of being continually in view of these fine buildings and monuments, they have several splendid museums, in which all who are disposed can study, at almost any hour convenient to themselves, particularly on Sundays.

He thinks an excellent method of raising the character of the English workman as a mechanic or an artistic workman would be something of this sort:—

"Whenever a boy leaves school, let him be furnished with a certificate, stating the progress he has made in learning while at school (as is done in a few schools at the present time); and if he is apprenticed to any trade let him be encouraged to bring to the school, periodically,—say twice a year,—specimens of his work, or a note from his foreman, stating what progress he was making towards usefulness. Here would be an opportunity afforded of giving him a few words of encouraging, sound advice, which parents are too often unable to give."

He wishes Mr. Cole, or his colleagues, would publish a series of popular essays on various subjects; such, for instance, as the harmony of colours, adaptation of form to material, &c. Why should there not be an elementary work on geometry, perspective, and orthographic projection, for, say, 2d.? All these things would tend greatly to increase the abilities of the workmen, as many are quite ignorant of even the simplest problems, in consequence of the difficulty they have to obtain such works.

The two reports on Wood-cutting Machinery are interesting and useful. As to Pottery, William Beardmore says, without fear of contradiction, that the British potters have nothing to dread in coming in contact with foreign workmen; "our superior style of work, the beauty and simplicity of our designs, the excellent ornamentation, the richness of colours, the white firm body, the fastness of the glaze, make us feel proud of our position in the great Paris Exhibition, 1867."

Writing on the subject of terra-cotta, Michael Angelo Pulham considers that England stands foremost in the quality of works in terra-cotta, for specimens exhibited for architectural purposes, in beauty of design, good taste, displayed in harmony of colours, and in the adaptation of terra-cotta for building purposes; also for the execution of works, in this beautiful material, requiring artistic skill, forethought, and perseverance to bring about successful results, as shown in many of the English examples. It is not surpassed for good colour, finish, straightness of mouldings, and is in long lengths; it is also well fired to stand any climate; and that next to England stands Prussia.

The wages or salaries paid to men, women, and boys, in Paris, seem to be according to their grades or different kinds of work. Good finishers get from 8s. 6d. per day (10 hours) downwards, according to merit or skill; some as low as 2s. 6d.; but at piece-work they can earn sometimes 12s. per day,—those are the best workers,—others in proportion; some piece-work prices are more remunerative than others; some goods can be hurried over quicker. Women get 1s. 3d. per day of 10 hours; boys according to their abilities. He learns that there are about 500 hands employed in pottery and terra-cotta works in Paris, numbering about 55 or 60; there are about 420 men, 40 women, 40 lads; only four manufacturers have steam-engines to mix and grind their stuff. About 350 men are in lodgings with their own furniture, 80 in furnished rooms, others as boarders; 40 lodge with their parents.

Although Paris is not a brick city, there are many bricks used there; and on the subject of Bricklaying, George Howell writes a useful report. Coignet's *béton* he finds dearer than brickwork. Of first-class brickwork in Paris he finds none, judged by an English standard. The best attempt yet made was at their market, "Les Halles," which was executed at the expense of the Corporation of Paris, and designed to ascertain the difference in cost between stonework and brickwork, the result being as follows:—Brickwork per cubic mètre, 12*l.*, or 8*l.* 8s. per cubic yard; whereas, Raviere stone, which is considered very good, is delivered in Paris at 4*l.* 8s. per cubic mètre, or about 3*l.* 7s. 6d. per cubic yard. This latter price leaves so large a margin for working and fixing, that it may easily explain how little first-class brickwork is done in Paris. But this is only judging from their (the French) standard; for a more monstrous absurdity could not be conceived, as he reasonably says, than the notion of paying at the rate of 94*l.* 6s. per rod for brickwork. Yet this was the price, he was informed, these "halles centrales" cost in erection. It is a very fair piece of gauged brickwork, every brick rubbed and squared, bed and face, with joints not exceeding one-eighth. He thinks that the finest piece of gauge work in London could not exceed 20*l.* per rod, and in very many instances excellent work is done for 15*l.* or 16*l.* The prices for materials, taking one thing with another, will be found pretty nearly equal: their bricks and sand are cheaper; their lime dearer.

Writing of bond, he gives an amusing anecdote:—

"I once saw a curious historical blunder by an able architect, a member of the Antiquarian and other learned societies. Having a great liking for the thirteenth century style, he determined to carry it out, in all its details, in a large residence he built for himself on the banks of the Thames, about 12 miles from London. He carefully prepared all his plans; had castings made purposely for bolts, brackets, grates, &c.; carefully selected his tiles from Minton's for the halls, and also the flat tiles for the roofs; polished oak floors, beams, stairs, &c.; and doors and frames, windows, &c., scrupulously exact as to their historical character and appropriateness. In fact, he bestowed all possible care on his residence to make it a reflex of the thirteenth-century style. As it neared completion, he invited several friends from London, professional and otherwise, to inspect his mansion. Many, very many, expressed their hearty approval. About this time I went to take charge, as foreman, of a large pair of villas, built in a kind of Venetian-Gothic style, close to the thirteenth-century specimen I have described. I at once noticed the unfortunate incongruity, but did not deem it advisable to rush into print with the discovery, as I knew that the proprietor had bestowed great pains on, and felt great pride in, his undertaking. Some short time after, he came to reside in his chosen home, and personally superintended the few finishing touches to his creation. One morning, about breakfast-time, he came to me, and asked my opinion as to the style, &c., of his residence. After cordially approving very many things which he pointed out with some enthusiasm, I told him that it was all very well, but he had dressed it in a modern costume. I then explained to him that whilst he had bestowed such care upon all possible details, yet he had adopted a style of brickwork totally unknown in this country till the time of William III., viz., Flemish bond, when it should have been the Old English. He at once saw his error, and acknowledged it; but I determined not to send a letter, as I had at first intended, to the *Builder*, for I saw that it would give him intense pain."

Mr. Howell (who, like Mr. Lucraft, is a leader amongst his class) confesses that their *Conseil des Prud'hommes*, is of essential service, and he hopes Lord St. Leonard's Act will pave the way to a thorough system of arbitration in this country.

John Jeffrey, who writes also on bricklaying, coincides in this. "I should like," he says, "and I believe thousands of English workmen would like, to see a *Conseil des Prud'hommes* in England, similar to the one in Paris, which would prevent those outrages, so painful for us to hear of, now being revealed to the Royal Commission."

We are not half-way through the book, but must break off, possibly to return to it. It is published at a very small price, considering the amount of paper and print, and we shall hope to hear that it has reached every workshop, Working-men's Club, and Mechanics' Institute in the kingdom. It should set our workmen thinking, as well as those who are interested in industrial and social progress, and do good in more ways than one.

THE WORKS OF BARRY.

THE life and career of Sir Charles Barry have already received a notice in this Journal, and references there supplied to former notices of his works have revived past recollections and given renewed interest to that last summing-up of works and ways that every artist must be prepared for who sets his mark upon the world,—nay, will ever have in mind as the future occasion of his best, because most disinterested, rewards. His biography has already been amply characterized,—the life as lived;—and of the life as written it is not necessary,—as now we propose to restrict ourselves to architectural criticism—to say more. We are presented with illustrations with a certain liberality; we read the motives that influenced various peculiarities of design, the architect's own afterthoughts and self-criticisms; and, moreover, some interesting independent observations by no means dictated by the disposition to worship without scruple. We may differ in opinion from even what we find so candidly set down, and must very frequently; but shall often owe the opportunity of differing to frank revelations. We discern no endeavour either to hide away evidence or overlay it with painful sophistication, or to smother objections however legitimate, in the birth; and the author of the biography, and they who have assisted, show the true respect they devote to the subject of it by not sacrificing their individual independence.

A list in the appendix, of architectural designs executed or not, in order of date, enables us to arrange our observations, as we propose to do to some extent, with reference to that historical development that results from a development within the designer's mind under counter influences reacting from without.

"The building," says the author, "which first gained him high reputation, and which even now holds a high place among his works, was the Travellers' Club." The select competition for this dates 1829, when he was in his thirty-fourth year. The building is small, but that the arrangement of the ground brought its narrowest ends only into view, was perhaps from the height that it was contemplated to allow, a favourable circumstance. Again, that the two fronts have no connecting flank view gave an opportunity to treat them with a certain comity of contrast that still by no means compromises unity.

That the design, to a certain extent, recalls the villa Pandolfini, is only to its honour; for assuredly it does not repeat it. The simplicity of the rectangular building and the proportions of the details and delicacy of their finish, are very agreeable. The unbroken cornice unites the whole, and is happily relieved by the depressed but visible roof above, as below it is united to the ashlar by what is rather an enriched wall-plate than a proper frieze.

The gradation thus obtained, and which is repeated with modifications in the adjacent Reform Club, is certainly very happy; its capabilities are even yet not fully worked out. The expression of the articulation of roof and wall that so often unhappily fails, is thus perfectly vindicated; and wall-plate, bed-mouldings, and sloping roof introduce the same effective triplicity that has helped so much to secure permanent admiration for the grouping of architrave, frieze and cornice.

Barry, we read, held the position of the door at one extremity of the street front to be a blemish inconsistent with the symmetrical principle of his design, but forced upon him by considerations of convenience, and the very small frontage at his command. We should rather be disposed to applaud the success with which he contended against limitations, than assent to an objection which amounts at last to a regret that the problem before him was not this but another altogether. The door at the extremity is the standing difficulty in the treatment of our ordinary street houses. The more important it is made—and the tendency runs in this direction—the more lopsided does the front become; and the illustrative vulgarism of a pig with one ear becomes exaggerated by hypertrophy.

We lately remarked in an old-fashioned street an ingenious attempt to meet the difficulty, in a house of sufficient importance to have five good-sized windows in each story and four to the right of the door. The centre of the house comprising three windows on all the stories was set forward scarcely more than the thickness of a brick; yet even so it dominated the lateral narrow one-windowed divisions, and the door thus became only an irregularity in a subordinate part. The

front of the Travellers' Club is happily of sufficient breadth for the windows on a level with the door, to intimate an apartment of handsome dimensions, and in no way straitened by the reduction for entrance; while the treatment of this avoids enhancing to the point of obtrusiveness its natural superiority. Under the given necessity, the case could not be better managed; there is nothing for it in such circumstances but to accept the conditions, repress the pretensions of the doorway (which scarcely become it in such fortune), equalise it as nearly as may be with the window espacement, and then make some sacrifice to give a predominant importance to the symmetrical window-range of the best floor.

The garden front, as it exists, is at a disadvantage as compared with the engraving; for the balustrade has been forgotten, abolished, or economized, and the structure thus appears sinking into, or rising out of, a hole; and the expression of basement, on which Barry was always so anxious to insist, is quite lost.

Another objection, it may be as little, attaches to the original design. As we look at this front at present from Carlton Gardens, we see an attic story growing up irregularly from the centre of the building, and garnished most unhandsomely with ventilators and chimneys. The parasitical out-growth,—such it seems,—has the appearance of rooting deep among the very central organisms of the structure; the difficulty that might be found in giving extension—is it a smoking-room,—to a design already complete, is quite conceivable, but the mischief has surely been aggravated beyond imposed necessity.

One word more: the unpierced space above the windows is so excessive, that it suggests darkness within, whether the space be occupied by unusual height in the room above the windows,—the semicircular heads of these are unpierced,—or by unhandsome and unnecessary cocklofts between the ceiling and the roof.

Reason, no doubt, steps in and volunteers the inference that the interior space is occupied by rooms lighted by a skylight, unseen and unindicated, or by windows turned towards an interior court or borrowed light. But architectural expression ought not to be, and will not be dependent on unguided conjecture. This is a difficulty that we may notice several times within a walk,—we see it in the upper stories of other club-houses, and it is apt to beset picture galleries. The case is one of necessity, for such blank walls of rooms so lighted will have to be presented to view; but there are preferable options in dealing with them. In the case of interior windows the utmost that can be said is, that the outer blank wall can still be so treated as to intimate that it does not at any rate shield only the dark top of the ill-proportioned story below it. When a skylight is in question, we have no hesitation in affirming that its existence should be expressed by at least a coping on the visible roof, the necessity for the definition of the floor it pertains to, remaining the same.

It is on grounds here implied that we have ever believed that in the Greek temples that were lighted from openings in the roof, the visible roof must have exhibited the coping of the opening that interrupted the ridge, though probably raised so high that the sides ranged with it. So far from such a feature deforming, it appears to be an æsthetic necessity; by such frank and conspicuous admission alone could be excluded the suggestion of the cella as being blocked in and utterly dark in the midst of its highly-illuminated porticoes and ambulatories.

The elbowed voussoirs of the lower windows—a misery of architectural anchylosis—cause a certain pang.

The Gothic design of the Birmingham Grammar Schools dates four years later, in 1833. Barry had by this time become dissatisfied with his earlier works in the style, and did not enter on a new design without having studied both the original examples and the literature of the Mediæval Renaissance.

The building, we read, "attracted great attention and considerable admiration from the public and from the critics." This is but a cold account, and the tenor of other observations intimates that again the artist failed to satisfy himself. Several objections are noted, and various plans for improvement; yet we miss an allusion to one of those errors that declare themselves too distinctly to spectators of the executed work, though invisible in the drawings and ever evaded instinctively by the draughtsman or the photographer. New-street, in which the schools are situated,—and situated on the side where they are most advantageously seen,—is but narrow as compared with the length of front to be taken in at a view. The building, therefore, when we stand opposite to it is seen but momentarily, and to disadvantage, and the best aspect—frontispiece, as our ancestors would have said—should have presented itself well to the oblique view as approached from the direction of the town-hall. This fails, however, and unhappily. The seven lofty and enriched windows are embayed between rectangular buttresses of such projection, and that hug them so closely as, from the approach indicated, to produce entire eclipse. They only declare themselves at a point from which the full line of front cannot be taken in, and then begin again to retire at our next step, and the blank sides of the buttresses fold round like shutters. The effect is much the same in the engaged colonnade of the Royal Institution in Albemarle-street; but there, at least, the windows are plain and the interposing shafts are ornamented. There would have been but poor palliation by a clock-tower, which the architect proposed to erect at one end of the front, "for greater variety, and also to give greater importance to the building as seen down the street." Still less desirable, for more incongruous, would have been the lantern which is shown in the engraving as designed, but was never executed.

Symmetry and regularity are claimed for the design, and, as regards the latter, with justice; but the symmetrical scheme is not vigorous. The front, no doubt, is divisible into equivalent halves, but the dividing line passes through no more important centre than a window,—one of seven similar and a door. A bay window over the entrance and a gabled parapet above were thought of, but renounced for a reason that seems illusory enough, but that always deterred Barry from advancing the centre of a composition,—he fancied the effect would be to destroy the apparent size of the building. In result, the centre of the front has less emphasis than the centres of the wings, which, disproportionately small as they are, completely overmaster it by this point of dignity and assertion of superior organization.

Passing over the alterations of the College of Surgeons, we come to the design for the New Palace at Westminster, begun August 23, 1835. The drawings were sent in on the following 1st November, and the award was published on leap-year's day, 1836. From this date almost to the death of the architect the design may be said to have been in progress,—so considerable were the extensions required, so important and vital,—in respect of some we are almost induced to say fatal,—were the modifications originated or adopted. New developments rose before him to the very last, and assuredly in respect of vigorous and rapid industry, courage and enterprise, versatility of resource and strength of will, never was there an architect more equal to the greatest architectural opportunity that has occurred since the Fire of London, than Sir Charles Barry. So far as his qualifications failed to produce a result fully worthy of the occasion, we are inclined to ascribe it in part to certain deficiencies in his intellectual education, and then to the circumstance that he came into the great battle of professional life precisely when taste was taking a direction opposite to that for which his own excellently conceived and executed plan of self-education had prepared him. It was due in part of his own otherwise valuable self-reliance that to the end of his career he had little esteem for theory; and finding good sense and instinctive apprehension so often leading him right, he lost the advantage of the counterbalance that definite principles give to personal predilections. The Travellers' Club and the Reform Club are those of his works that best embody the ideal that he brought home with him from the observations and studies of his great tour, and that show both within and without how prepared he was to nationalize, to acclimatize, all that his models have of most effective, to the exclusion of not only what would be out of place in England, but also of what was unhappy even in Italy and would be anywhere. Thus prepared, he was turned at once aside upon competition for Gothic churches at Brighton and elsewhere; he was thrown out of his natural stride at the very start—he had to give the world not his best, but the best he had that they were in a humour to bear, and this best could scarcely be at a postponed notice what it would have been had his early years anticipated the kind of claims that would be made upon him. That he was, at least, equal to the occasion as against all competitors, might freely be allowed by those who would still be conscious that in a style that to him was not old but new,—less antique than modern,—his practice could scarcely be decided in a moment, and he to the last proved open to biases of influence and winds of secondary suggestion that he would not have admitted for a moment had fortune led him by his expected path. Hence came in a certain vacillation, as unfortunate as unnatural to him, in his development of the Westminster design; and we may trace its influence and intrusion even into later works professedly in Italian taste. The Reform Club dates in 1837—a year or so after the Westminster award—and it still retains the original Barry stamp of elegant simplicity and vigour; but if we look back to the design that gained the award originally we shall find the same mint mark is there also. Years of every varying design are expended at Westminster; a new aspect has come over the palace entirely, and the latest work of the master in Classic Renaissance—the Halifax Town-hall—betrays the same, but no more contagious sophistication than transformed the competitive design which still awakens warm admiration into the palace as executed.

Those who are so fortunate as to have preserved a copy of the engraving that long ago headed the Stationers' Almanack, will see the image of Barry's original and really noble conception. We cannot pursue the comparison into all its details. Some of the most critical changes were these:—The original buttresses of the river front, however little else there was in their favour,—and a buttress inevitably suggests not a front of a building at all, but a side,—were at least a relief to the decoration of the windows, and so rendered a service that is forfeited by the turrets, which, though of greater projection, are now so mingled with the general surface by the diapering and panelling, fretwork and filagrees,—the very tangleweed of uniform enrichments, as to give no aid to breadth or relief in any sense. "The towers of the river-front remained for some time without visible roofs; and, when the roofs were introduced, they were so kept down (in deference to the advice of others) in relation to the angle turrets, that some confusion of principle resulted. He regretted afterwards that he had not kept down the pinnacles and made the roofs boldly predominant." The architectural pretensions of high roofs is a question that here must be for the present declined; but there need be no reservation in lamenting the equivocation, so to speak, that is involved in their conflict with the pinnacles. The most conspicuous instance is, of course, the most unfortunate; and nowhere is the comparison of the original with the executed design more painful than in the skyline of the Victoria Tower as executed. Pinnacles assert themselves shamelessly in competition with the high-pitched roof, which still is sufficiently master of the situation to vindicate at least its pretensions, and lifts aloft the surmounting flag-staff in token of a spirit protesting against tyranny, if incompetent to conquer. The pen is rather apt to run away with the intention when the comment turns to such unfortunate alterations; but, at least it is Barry that we would vindicate against Barry. The reduction of the height of the pinnacles would have mended matters but slightly, while the roof, to which predominance would then have been transferred, retained the inherent weakness of expression due to its emergence from belting walls, with which articulation fails to be effectively pronounced.

"The great Victoria Tower underwent repeated alterations. It had been originally treated with all the solidity of a 'keep.' But the reduction on plan was compensated by increase in height, and the whole character of the design was necessarily changed. The entrance had been of moderate dimensions (professedly designed on the model of the Erpingham Gate at Norwich), and the top of the niche-band ranged with the cornice of the building. It was now raised to its present magnificent dimensions; the niches remained; and the upper part of the tower was divided into three large and two smaller stories. The design and arrangement of these cost incalculable trouble before it assumed its present form, divided into three windows, and the upper story rendered the prominent one by the arched and canopied heads of the windows."—P. 254. Mischief,—nothing but mischief; incalculable cost of trouble worse than thrown away. We reprint the paragraph from

the book as it stands; but apparently an error of punctuation or style makes it read as if the division of the upper part of the tower into five stories were the later modification.

We observe here how liable an architect may be in the progress of a large work to sacrifice the effect of the whole by his efforts in favour of the part under his hand at the moment. "In the tower as it stands, he always felt pride and pleasure, and trusted that it would be the great feature of the building by which his name would be best known hereafter." But woe to the fame of an architect whose name is attached preferentially to a single feature, however vast, rather than to the entire building, to which, as a feature, it should after all be subordinate.

"The magnificent dimensions of the entrance" as modified,—as exaggerated,—destroy the building attached to it. This doorway is equal to the joint height of the whole four stories of the façade seen along with it;—the stories are dwarfed even more than the entrance is enhanced. The height so rashly styled magnificent could only have become so by being supported by a certain proportionate gradation of openings; this, however, would have been quite out of the question, and the only opportunity,—the Peers' entrance,—is carelessly thrown away; it is an entrance ranging with the meanest,—the basement story,—and betraying infallibly the consciousness that always haunted Barry,—how very unnecessarily!—that a porch must of necessity have the appearance of being an excrescence.

The exaggerated height of the windows of the tower as altered contribute their share to the degradation of the dignity of the building. The great space between the tops of the upper range of large windows and the parapet is unhappily suggestive of darkness within,—of useless, uncomfortable emptiness or solid callosity.

The adaptation that was effected of Westminster Hall was, we must profess in all frankness in our opinion,—we have not here an alternative view of Sir Charles Barry,—a mistake no less and of much the same kind. It is not alone that some profanation of historical memories was involved in the charge, and that what was a hall became reduced not even to an ante-room but to a passage; but the scale of this interior so far surpasses that of the chambers and halls that are entered after passing through it, that we are confronted with the grossest architectural anticlimax. Roominess is the characteristic that fails us most regretfully among the passages and corridors, and even in the halls of debate; but the sense of being "cabinned, cribbed, confined" is, in truth, artificially aggravated after such an introduction. The adaptation brought with it the necessity for the axial divergence of St. Stephen's Hall relatively to the central hall, and that man's sensibilities to angular bearing are little to be envied for their delicacy who is not put out by the irregularity and pursued by a feeling of disarrangement even into the depths of a committee-room.

The biography frankly admits, what otherwise we would willingly have doubted, that it was the individual preference of Sir Charles that led to the so uniformly distributed surface decoration (p. 257). He became averse to leaving any surfaces plain, as liable to have the appearance of "neglected spots." We almost could recognize here a revival of the early impressions that engaged his admiration for the lavish decoration of wall surfaces by the incised sculpture of the Egyptians. The tendency was not confined to his Gothic works; it spread to his designs in other styles; it is as rampant in his last work, the Halifax town-hall, as at Westminster,—and even in the quieter elevation of the Treasury buildings, or Board of Works, it has its wilful way.

The world had little to regret when the elevation of Sir John Soane was superseded here, and where now is there one of his elevations remaining?—but, at least, his Corinthian order was in itself very beautiful. The columns were adopted in the new design; but they may now be passed and repassed by the most enthusiastic devotee of Classicism, and be unrecognized. They are now engaged in a wall, of which the masonry is so channelled that the grooves only confuse the flutes and arrises of the shafts, and by the breaking of the stylobate below, and the entablature above all the contrasts that were relied on in design, to add glory to foliated capital and moulded base, are lost for ever. We cross over the road, and notice how Inigo Jones secured the dignity of his columns, and gave by moderated subordination an organic vigour to his design, and regret that Barry, who felt such true admiration for him, had not rather laid himself open to the influences of his predecessor than of contemporaries.

Other works remain that may hereafter afford scope for further observations; at present, we conclude. We have endeavoured to emulate the spirit that we have praised in the biographer; to employ the one weight, the one balance, to be just both to an artist, of whom the nation has many reasons to be proud, and to ourselves as critics, whose only concern is, that the pride should be so intelligent as to the past as to involve no dangerous contingencies of wrong imitation in the future. W. WATKISS LLOYD.

DOMESTIC ARCHITECTURE OF MEXICO.*

THE "hacienda" is the most important building on an estate, the residence generally of the proprietor, and stands somewhat in the same position as the mansion or castle of our landholders and gentry: it is frequently of very large extent, quite equal in space and proportions to some of the largest mansions of this country, and we dare say at one period it exercised the same wide civilizing influence that emanates now from those important places.

Attached to every hacienda is a capacious chapel fitted up in the gorgeous style of Roman Catholic countries, and there was a resident priest to administer to the spiritual wants of the proprietor and his dependants, and whose business, it was presumed, was to lead them in the right path; but as most of these are closed or in ruins, and the priest *non est*, it may account in some measure for the want of their deterring influence to the serious depredations that very frequently occur, and to the anarchy and disorganization that exist in that distracted country.

As the grandeur of our feudal castles has departed, and the feudal lord and his retainers exist only as matter of history, we think the social position of the Mexican hacienda has dimmed its lustre and usefulness; it is no longer the centre from which emanates all emoluments and pleasures, and pains and penalties; it is no longer the magnet of attraction for the surrounding country, with open house at all times to dispense hospitalities and as a resting-place for the wearied and benighted traveller: the will to dispense these good and benevolent duties now exists in many places, but the means to discharge them are wanting; the shadow is there, but the substance has long ago disappeared; and these *advantages* are doubtless due to the republican form of government they so much extol, and seemingly admire.

The hacienda, as the principal building on the estate, generally occupies the most commanding and best position as to site and aspect, and is built on a plan best adapted for the business of the estate: we will briefly describe one at which we spent some weeks of our sojourn in Mexico, the property of one of the wealthiest dons in that country.

It is called "Potrero," and is situated about half-way between Paso del Macho and Orizaba, a convenient halting-place for rest and refreshment, and is just on the borders of that immense forest that covers a large tract of country for about twenty miles, running east and west, and embracing the rugged and lofty Chiquihuite mountains, the haunts of the Mexican brigands and desperadoes. On arriving at Potrero you enter upon a comparatively open and level country, but still very much covered with bush and plantation. The building is square on plan, though many are rectangular, and the outer area of the square is covered with a block of building composing the different apartments, properly roofed in, and with very wide overhanging eaves, supported on pillars at intervals; and this forms on the outside a wide arcade or gallery, and on the inner side a covered corridor that extends quite round, from which the different apartments are approached; and the centre part of the enclosed area is open and uncovered, and used for various purposes of the estate.

It is erected only of one floor, and the site is raised, so that the apartments are approached by a step or two, and in the middle of the front is a large gateway, closed in with folded doors, which forms the only access to the building and premises. In the inner area are placed the plant, and frequently the valuable live stock of the estate; so that the whole are secured safely within the four walls of the hacienda, and, indeed, the walls are built so substantially and well that they would withstand an ordinary siege.

In the front part of the building are the principal apartments,—the reception and dining rooms; and in the wings, on each side, are the sleeping apartments, and the back of the building is occupied with the kitchen and servants' apartments, stables, &c. The apartments are lighted with large windows opening down to near the level of the floor, and are closed in and protected with iron gratings, and shutters to close at night. The floor is covered with large red quarry tiles, about 12 in. square, of native manufacture.

The walls are thick, and built of very small rubble masonry, almost like *béton*, with bond-stones at intervals to tie them together; and it is astonishing to see how substantially they are built, and how well they resist the vibrations and concussions of earthquakes, showing the excellent quality of the lime they use for building purposes; and the fronts, when finished, are plastered over smooth and coloured.

The roofs are of the ordinary collar-beam construction, covered over with close boards and bright red horse-shoe tiles, laid double, one course with the convex side down, the other the convex side uppermost, and made to overlap one another: these tiles are also the produce of the country.

The interiors of the rooms are tastefully fitted up in the Mexican style. The walls are usually pale green or blue, pale salmon colour, pink, or French white; the base moulding, for about 15 in. deep, is dark brown, or black. About 4 ft. 6 in. above the floor there is a surbase formed of a wreath or scroll of coloured leaves and flowers, to imitate nature, laid on by means of stencil-plates, and a cornice is formed in a similar way, and these are generally well executed, and give the apartment a finished and even elegant appearance.

They do not disfigure their walls with ugly, ill-designed paperhangings; but resort to Nature to afford them suitable patterns for decorations, and to display their artistic skill.

The furniture of the houses is generally made of the excellent hard woods which the country produces, and usually in the European style; and some furniture, such as rocking and other chairs, and other common-place articles, are imported from the United States of America.

We have seen some old furniture, doubtless of Spanish make, tables and other articles, beautifully designed and carved, that would do credit to any age and country, showing that the Mexican is not totally devoid of taste for the fine arts, however he may be morally and politically debased.

The principal apartment being in front of the building, on each side of the windows are placed rows of rocking-chairs, with a piece of rich carpeting placed between on the floor opposite the window for the sitters to place their feet upon. It is to this rendezvous they resort in the leisure hour, or when the business of the day is over, to chat with their friends and indulge in the fragrant weed,—"cigarettes or cigarros,"—a luxury both sexes are habituated to.

In the chambers it is usual to place one or more beds or "cots," as they are called. A "cot" is simply a stretcher or frame-work, supported on cross-legs, which are made to fold up, and covered with stout cloth or strong wrapping. On this are erected at each corner slight posts to support a tester frame-work, over which the "pavilion" mosquito-net is placed; and sometimes you are supplied with a mattress and sheet, "serape" or quilt; at other times you lie without a mattress, and simply a sheet and quilt, which is usually sufficient for comfort, except in the rainy seasons, when everything feels damp and chilly.

In the kitchen they have no grates or stoves for cooking and the culinary business of the houses. A hearth is formed of masonry, solidly built together, about 2 ft. 6 in. high, and of sufficient length and width for their requirements; and upon this hearth is prepared everything that is necessary, and the cooking is principally accomplished with charcoal fires.

The cookery is usually in the Spanish style. Almost everything is cut up into small pieces and stewed, sometimes plentifully seasoned (spiced) with garlic. They use a great quantity of lard, so their dishes are of very thick consistency, and very unctuous to the taste, not agreeing with every appetite. Their soups of different kinds are generally well prepared, and, perhaps, almost the only thing an Englishman

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* See p. 7, *ante*.

can relish. Their meats are hard and tasteless; their pastry indifferently made, although they possess a superabundance of the finest fruit possible for the purpose, and other good ingredients. The wines they generally use are claret and catalan, although other kinds may be had in abundance by paying a good price for them; and our favourite beverage, beer, is sold at ½ dol. (2s.) per pint bottle.

The clarets are tolerably good, but the catalan is very indifferent, occasioned, it is said, by adulteration, as it is asserted that Campeachy logwood is extensively used in the preparation of that article, which, doubtless, would produce the peculiar well-known tint, but not the requisite fruity flavour. Their dinners usually consist of six courses, finishing up, as the last course, with the inevitable "frijole," a dish composed of small black beans, as aforesaid, stewed until quite soft, and thickened plentifully with lard. This dish is devoured with much *gusto* by the native-born, but is not much relished by Europeans.

The hacienda before alluded to was built on the side of a large square, forming one side of it; another side was occupied by the chapel; another the sugar-boiling house and buildings connected; and the other with workshops, stores, &c. In this square it is their custom on their high days and festivals to indulge in sports and public pastimes, such as the bull-fights, which are not conducted in that barbarous and cruel way they are in old Spain; and in the evenings of those days they display their skill in pyrotechnics, in which they have the vanity to think themselves *au fait;* indeed, their exhibitions are exciting and brilliant, and very attractive to the beauty and *élite* of the country.

At this historic hacienda, the late Emperor Maximilian, and almost every important personage that has visited that country, has taken up his temporary abode, and shared the hospitalities of the generous and wealthy proprietor. Emperors and princes, ministers, marshals, and generals, "who fill the roll of fame," and others, too numerous to mention, have partaken of the hospitalities and obtained temporary shelter, which its strong enduring walls and substantial roof afforded; and in a thinly-populated country like Mexico, the advantages of such a place can only be appreciated by those who have borne the fatigue and danger of travelling through such a country, over the worst and most detestable roads in all Christendom, and successfully escaped the revolver or machetta of the ever-to-be-expected and dreaded Mexican brigand.

During the reign of the ill-fated Maximilian, and the occupation of the country by the gallant French army, the main roads had assumed, to a considerable extent, a degree of safety, quite unusual for such an ill-trained and ill-regulated country; but on the restoration of the republican form of government, presided over by that arch-traitor Juarez, the main roads, as heretofore, will be occupied by the bold and villainous banditti; and every person, foreigner or others, possessed of any means, will be mercilessly robbed, and perhaps savagely murdered, as a fit inauguration of the re-establishment of the so-called *liberal* Government.

Close to "Potrero" are many huts erected for the use of the labourers of the estate, occupied by Indians and Negroes, who live on good and harmonious terms, and there does not appear to be any jealousy of races; but in other instances, where the estates have been thrown out of cultivation, the Indians and Negroes have resorted to the neighbourhood of some of the towns, and there have erected huts and established regular villages, some of considerable extent and population, as they prefer living detached and isolated from the more civilized part of the community established in the towns.

The estates in Mexico are seldom fenced off or divided into inclosures, except in a few cases, where walls are built as a boundary to the public roads, or in separating estates, or in sunk fences in separating pasture from cultivated land; and it is no uncommon thing on the extensive prairies to see no fence or boundary, even so far as the eye can reach, over the broad expanse of country.

The landed estates of Mexico are of fabulous extent: the Potrero estate, we understand, covers an area of 25,000 acres, which is covered to a considerable extent with forest, containing a great variety of magnificent timber; the fortunate proprietor owns other estates also of considerable magnitude; and there are other estates of even still greater extent than these, and we cannot wonder that, with so much land placed in the hands of one man, and with such a sparse and unsettled population, it is not all cultivated, or at least but partially, although it is probably as rich and productive as any tropical land in the world. And to show how very productive it is, we may mention there are eighty acres that have been laid out of the Potrero estate for a coffee plantation that produce to the fortunate cultivator 3,000*l.* per annum; and if every part of this huge estate were cultivated in a similar way that was suitable for it what a magnificent and princely income it would yield to its wealthy proprietor. Of this there cannot be any doubt, as coffee is in great demand, a ready sale is effected in the country, and even exported abroad through the merchants at Vera Cruz. Under the mild, benevolent, and enlightened government of the late Emperor, forfeited estates, and those which the proprietors refused to cultivate, were taken possession of by the State, and an attempt was made to colonize the land with immigrants from the United States, and other countries, by dividing it into farms of from 320 to 640 acres, to be paid for at the rate of 1¼ dollar per acre, and the payment for which was to be spread over five years.

These farms were much sought after by the disbanded soldiers of the Confederate armies of the United States that escaped to Mexico, and by immigrants who left the United States in consequence of the protracted and bitter war raging there; and many of the parties had entered upon their allotments, and had commenced operations to clear and cultivate the land; but this was not accomplished without considerable opposition from the old proprietors, and from parties of Indians and Negroes who had been old dependents, or had squatted on the land, and which was shown in depredations upon the stock, and even by shooting one or two Americans; but doubtless on the fall of the empire, all the well-considered plans, the enlightened arrangements for bringing that fertile and fruitful land generally into cultivation, would be abandoned, and this fine and productive soil will relapse into its original barrenness, and the impenetrable bush and forest will spring up again and obliterate, as it were, this otherwise highly-favoured land from the fair face of a bounteous nature.

The mechanics employed on the estates, and in the construction and repair of the buildings, are not a very industrious or skilful race of men; their carpentry is generally roughly finished, being principally jack-planed: to plane it smooth would be attended with too much labour, and their framing is generally in square panels, formed of small scantling for the doors and window shutters: the carpentry to the roofs is generally of the roughest character, but they are strongly framed together. The material they prefer to work in is cedar wood, principally because it is soft and readily converted; the better and harder woods are utterly rejected, because of the extra labour attending their manipulation.

Their turned work also is not well executed, and is likewise finished roughly, on account of the extra labour required; and this is to be regretted, as there are vast quantities of fine tough wood suitable for turning, and which would have afforded a fine field for employment to an industrious population.

Their mason's work is generally very good; their rubble stone walls, composed of very small stones, is remarkably sound and good, and this arises principally from the superior quality of their limes and mortars, which set exceedingly hard, forming a wall almost as solid as a rock.

There is not much ashlar used in their buildings; but where it is employed, it is skilfully squared and dressed; but it is attended with a great expense, on account of the small amount of work executed by each man per day.

In plasterer's work they excel considerably; but that in a great measure may arise from the superior character of their limes and mortars, as before mentioned. The walls are smoothly and finely finished,—indeed, so well finished that they take colour and look well, and are frequently handsomely ornamented with elaborate designs in stencil, of a variety of colours, representing animals, foliage, fruit, and wreaths or scrolls of the beauteous flowers of the country.

In smith's work there is not much scope for their skill. Iron is expensive in the country, and not very easily obtained, and it is not much employed about the estates or in their agricultural implements; nevertheless there are some fine specimens of ironwork used for window-guards, with ornamental heads, about the haciendas and the houses in the cities and towns, possibly imported, or the remains of those introduced by the Spaniards.

The price of labour varies from about 4 reals* to 6 reals a day for agricultural labour; and for mechanics, from 1 dol. to 1½ dol. per day, according to experience and skill; but there is very little dependence to be placed upon them so as to obtain their services regularly: they would, perhaps, continue in your employ until paid, which was sometimes weekly or fortnightly, and if you paid them on a Saturday night they would leave without saying a word, and when Monday morning came you would not see them again,—not a man would be there to resume the work. This frequently causes great inconvenience, but as it is the custom of these roving Indians, inherited from their forefathers, to constantly change their places and employments, and as their wants are so very few, and their necessaries of life so cheap and abundant (a few reals would keep one in idleness a considerable time), it must be submitted to, and borne with patience and equanimity.

It is wonderful how small a portion of soil under the bright and azure sky of Mexico will maintain and afford sustenance to a family: the same extent of land which would yield wheat for two persons in this country would produce sufficient, in that prolific soil, for fifty persons; and the return of corn for that highly-favoured and productive country is never under seventy, and sometimes exceeds a hundred-fold.

In the foregoing remarks upon the agriculture of Mexico we have alluded more particularly to the great staple productions of the soil, and have omitted to mention a great variety of fruits and vegetables that abound very extensively in the cultivated parts, and that yield large profits to the producers; and when we observe, that in addition to the vegetable productions of the tropical zone it produces almost every species known to Europeans, it at once shows the great advantages of its soil and climate, and which only requires an orderly and industrious people, and sound and enlightened government, to be one of the richest and most flourishing countries on the habitable globe.

MORE SCHOOLS OF SCIENCE AND ART.

AT the present time a representative of the Department of Science and Art in the Privy Council, Mr. Buckmaster, is travelling and explaining, in various towns, an offer from the Government to assist in the formation of local schools of science and art. This is done in the form of a lecture, generally given in connection with the local mechanical and scientific institution. We will mention the kind of aid Government proposes to give. Evening classes, drawing attention to the fact that the teachers are paid according to the efficiency shown by their pupils, and that the latter are encouraged by prizes of books and medals, and the prospect of being considered qualified to teach others on the same terms, when they have passed a first-class examination. Situations on Government works in the colonies and elsewhere, have occasionally rewarded exceptionally apt scholars; but this was only mentioned as a fact conversationally, at the close of one of the lectures, and not held out as any part of the promise. First as to the teacher. The inducement held out to him is that for every pupil he has who can pass an examination which will be held on a certain day all over the kingdom, he will receive a fee of 1*l.* There are, however, to be five grades of efficiency; and for every pupil passing the second grade, he will get the larger premium of 2*l.*, and the third grade £3, and the fourth 4*l.*, and for those who pass the fifth or highest class of examination, he will receive the still larger fee of 5*l.* Now for the pupils. Those who pass the lowest and middle classes of examination, will be entitled to Queen's prizes, or a stated value of books, to be selected from a printed list sent for the purpose; and the four pupils obtaining the highest number of marks on each subject will receive four Queen's medals, one gold, one silver, and two bronze. Adult pupils of day classes will be entitled to receive certificates instead of medals. Furthermore, the Department of Science and Art promises to assist the expenses of apparatus to the extent of fifty per cent. upon the outlay.

The sciences recommended are practical, plain, and descriptive geometry, building construction,

* A real is equal to 6d. of our money.

elementary mathematics, advanced mathematics, theoretical mechanics, applied mechanics, acoustics, light and heat, magnetism and electricity, inorganic chemistry, organic chemistry, geology, mineralogy, animal physiology, zoology, vegetable physiology, systematic botany, mining, metallurgy, navigation, nautical astronomy, steam, and physical geography, or any one or more of them.

The first step to be taken towards the formation of a school of evening classes to teach either of these sciences, or drawing, is the formation of a committee of five persons. It is with this committee the Government co-operates; and it is by the means of the various local committees that the examinations on the sciences are all held on the same day over the kingdom. Any one who has taken a degree in either of the universities is qualified as a teacher, or any one who has passed an examination in any science, in any of the Government schools, is qualified to teach that science. After twenty-five lessons the pupils are allowed to compete for the prizes offered. A further convenience is offered in permission for persons who have not been instructed by the certificated teachers to attend the examination if they desire to do so.

Three hundred classes are now in operation, some of which are in small agricultural villages; and last May 15,000 pupils were examined through the agency of the local authorities. To show the need of a wide dissemination of the good intentions of the Department, we may add that of all this number, seventeen only belonged to the vast tract of country lying between York and Glasgow.

What are the difficulties in the way that prevent a large, if not general, adoption of the proffered assistance to cultivate the brains of the rising generation? First, there must be a long suitable room; then it must be warmed; then it must be properly lighted, before a single article of apparatus need be purchased. This involves a considerable outlay, amounting in most small towns to an insurmountable obstacle, A small grant towards this "money sunk" and generally inevitable preliminary expenses would clear the road in many cases. If our skilled artizans are to keep their place among the artizans of the world, they must look to their heads as well as their hands. And this appears to be an opportunity of doing so worthy of their best consideration.

THE BEHAVIOUR OF CONCRETE IN FRANCE.

As the subject of the employment of concrete in the construction of buildings is attracting a good deal of public attention, the following letter from M. Boileau, the architect of the concrete church at Vésinet, near the terrace St. Germain, not far from Paris, which appears in the *Moniteur des Architectes*, will be read with interest. It will be noticed that M. Boileau points out one or two defects in the French material (not exactly the same as our concrete, by the way), which have been only slightly alluded to before,—the liability to contraction and expansion in particular.

Illustrations, consisting of plan and an exterior and interior view of the church at Vésinet, will be found in our volume for 1865, pp. 800 and 805, and we also gave some particulars of the building in the preceding volume.

The following is M. Boileau's letter, which we print with some few unimportant contractions:—

"I ought first to observe that the merit of having been the first to suggest the use of *béton* instead of ordinary masonry in the church at Vésinet does not belong to me. It was M. Pallu, the founder of the park of Vésinet, a gentleman fond of new inventions, who gave M. Coignet the opportunity of using his plan for the first time in the erection of a monumental building. My responsibility as architect having been properly provided for, I, of course, had nothing to object to the trial of such an interesting experiment.

Although the concrete used in the church at Vésinet is not employed in those parts on which the stability of the building mainly depends, the vaulting of the naves being constructed with ribs of cast-iron in the ordinary manner; the enclosing walls, and especially the tower, which are of concrete, and were moulded at a height of about 100 ft. from the ground, with all the architectural and sculptured details required, enable me to judge of the results both favourable and unfavourable which have been obtained. * * * * * *

The sand used in the *système Coignet*, as in all good mortar, ought to be sharp river sand, not too fine, so that the proportion of lime or cement used should be merely sufficient to bind the grains together, but not to fill the interstices between them. These pores, by allowing the air to pass freely, cause the concrete to set rapidly; but when once the concrete is dry it becomes extremely absorbent. It was found that during rain the projecting cornices, which ought to have protected the walls, served, on the contrary, to wet them, by communicating the moisture deposited, and that the rain was driven by the wind entirely through the thickness of the walls and injured the painted decorations. The susceptibility of the blocks to the influence of moisture varied according as the pressure applied, which was by hand-power and consequently irregular, had more or less consolidated the materials of the concrete.

The inventor asserts that this inconvenience will cease when once the walls shall have become thoroughly saturated. This remedy, which may be satisfactory in the case of sewers constructed of concrete by reason of the impurity of the sewage, cannot, it is evident, operate upon buildings until after the lapse of considerable time in consequence of the intermittent character of the rainfall.

It must not be concluded from what has been said that a permanent dampness is to be feared; for, although the concrete absorbs moisture very freely, it dries again with incredible quickness directly the moisture ceases to act upon its surface.

Concrete, in the same manner as large masses of rubble, but to a much greater extent, is subject to contraction and expansion, which relegates to the category of chimeras the inventor's pretensions to construct monolithic edifices with this material. In walls of a certain extent which were built in one continuous length, the action of cold dry weather occasioned vertical cracks at intervals. . . . It was noticed that in the spaces of from 5 ft. to 6 ft. wide between these fissures there were no secondary cracks. From this circumstance it may be assumed that concrete, when undergoing contraction or expansion, behaves in the same manner as metals, glass, &c., and that a wall of this material placed freely on a level surface would contract and expand as a whole like an isolated bar of iron, without fracture; but walls built in the ground not being able to contract for their entire length, the shortening necessarily takes place in divisions, and cracks are caused by the resistance of the foundations to the general movement.

In order to reconcile the assumption of obtaining a monolithic construction with the results occasioned by the elasticity of the material, it is necessary, supposing, by an effort of the imagination, walls could be completely disengaged to admit that their dimensions might be increased or diminished, according to the variations in the temperature. Without considering the disturbance which would be produced in a house of this description, there is no need to point out the resistance which would be offered by the floors and roof to the general movement to annihilate this fiction.

However, the inconveniences of elasticity are less irremediable than those arising from permeability, and they might be, if not entirely avoided, at least considerably decreased, by a combination of divisions, allowing free expansion, such as are used only on a smaller scale in zinc work and joinery.

Besides the effects of elasticity which prevent the successful application of concrete (*béton aggloméré*), for the formation of large monoliths, there is a practical difficulty which cannot be obviated without great precaution, when it is intended to construct large blocks, which are required to be perfectly solid and immovable, such as engine-beds, &c. In order to ensure perfect consolidation, it is necessary that the fresh concrete should be added before the other is dry, and constantly pressed, which requires uninterrupted attention by day and night.

The vibration of the engines has in some cases separated the layers of concrete, forming the engine-beds, in consequence of the concrete not having been added continuously.

With regard to appearance and decoration, it is not to be expected that the same regularity of line and surface can be obtained in concrete as in worked stone. Besides the great difficulty of placing the wooden boxes which serve as moulds, which conceal the surfaces and joints, the influence of the weather causes distortions which are necessarily reproduced in the blocks moulded in these faulty receptacles.

With regard to the question of cost, concrete can only be used advantageously for building in places where stone is dear, and where river-sand can be procured cheaply on the spot. At Paris, where masons' work costs as much again as in those departments which possess quarries, the cost of concrete is equivalent to the cost of rubble masonry, rendered with Roman cement. This is quoted in the builders' price-list for the City of Paris, at 50 francs for plain walls and arches, which is double the price of squared limestone masonry in the same list. For architectural works in which mouldings are introduced, it costs as much as stone of good quality, including labour and fixing. From this comparison, which is based upon the relative high price of masons' work in Paris, it will be seen that concrete costs four times as much as worked stone, and twice as much as rubble work costs in places where these materials are not found on the spot. Finally, it is shown that even in Paris, if in a concrete building, the same prices were allowed as for ordinary masonry, the remuneration would not cover the expenses.

Setting aside buildings constructed on the spot after a special design, the true economy of concrete consists in its application for portions of decoration which require to be reproduced a great number of times, and in which hand-labour is superseded by a system of manufacture, such as balusters, which are now executed equally well in terra-cotta and with some improvement in point of colour.

With a reservation in favour of what a longer experience may produce, the advantages and disadvantages of the use of concrete, which has only been employed during the last ten years, and has only been under observation at the church at Vésinet for four years, may be summed up as follows:—

Resistance to the atmosphere, crushing, and frost.
Decided permeability.
Perceptible expansion and contraction.
Imperfect adhesion between the layers.
Irregularity in decorative features.
Economy not proved.

I hope that the preceding information will fulfil the expectations of my fellow architects, who have wished to have my experience to enable them to judge of the results obtained by the use of concrete in building.

L. A. BOILEAU."

THE GLASGOW SEWAGE QUESTION.

A PAPER on this question has been read before the local "Association for the Consideration of the Sewage Question," by Mr. John Murchie. He made various objections to the sending of the sewage to the sea, and to its being used for irrigation purposes, as being detrimental to the sanitary condition of the city. I propose, he continued, that the water-closet at present in use be given up, and that a thoroughly-trapped air-tight dry ash closet be substituted; such closet being fitted with a hopper for riddled ashes, and having efficient mechanical appliances for injecting ashes when the closet is used; that each closet be connected with a perpendicular glazed fire-clay soil-pipe from 6 in. to 8 in. diameter; that this pipe be connected at its lower end with an air-tight bucket, and that its upper end terminate above the roof of the house for ventilation and easy access for regular sweeping and cleansing, with an apparatus fitted for the purpose. It is possible that in many tenements and houses it may be found impracticable to find conveniences for working the closets in connexion with a soil-pipe as described. In such cases, or as an alternative modification of the plan altogether, if it were preferred, I would have an air-tight box or bucket attached to the bottom of the closet, but removable at pleasure, into which the excreta, urine, and riddled ashes should drop, such bucket or box being carried down, or out, every evening into the court or close, and the contents therein deposited in an air-tight receptacle provided for the purpose. I propose, further, that the city provide a complete plant of railway manure trucks, lorries, and iron boxes, fitted to contain about half a ton each; that manure depôts and sidings be constructed at numerous and convenient points along the various railways branching from the

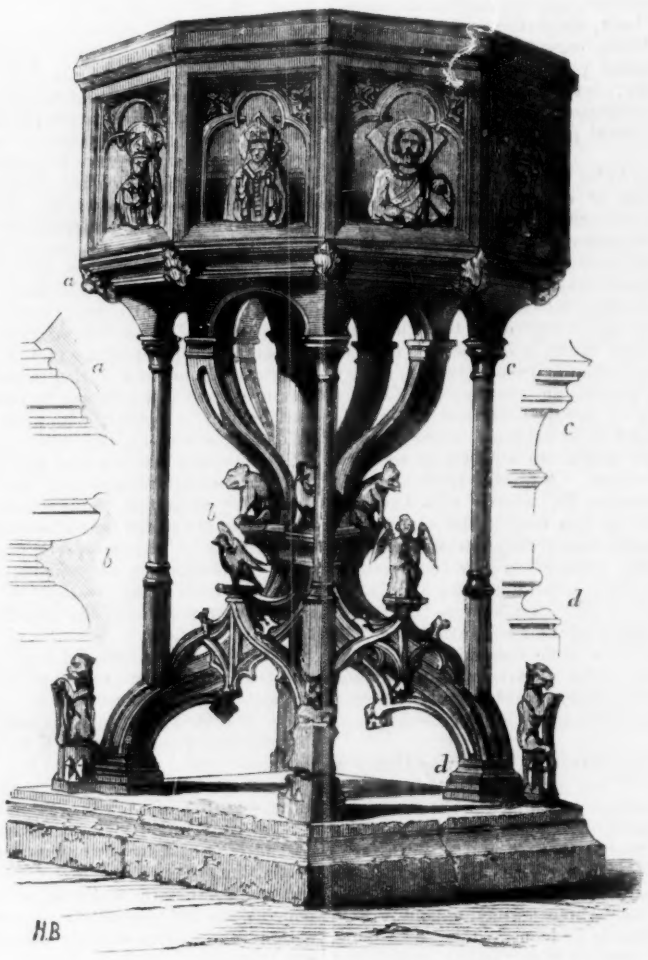
city. I propose that the municipality be mapped out into districts; that to each district be attached a lorry and staff of assistants, whose duty would be every night to visit every tenement and house in their beat, detaching the buckets affixed to the end of the soil-pipe, or removing the box or bucket from the close, or court, or door, as the case might be, emptying the contents therein into the half-ton boxes on the lorry, replacing the buckets, and, when loaded, proceeding to the appointed station, transferring full boxes to the trucks, and returning to their beat with a complement of empty ones. In the districts of the city, or tenements, where private closets were not introduced, and where common privies were used, I would have provided an iron box with screen, into which all ashes produced by the tenants would be introduced; and over the top of, and communicating with, this box, I would place closets, the droppings from which should mix with the ashes, the whole to be removed nightly, in the manner described as applicable to private closets.

Mr. Murchie gave estimates, showing that by the sale of the excreta, after paying all expenses, an annual balance of 15,439*l.* 10*s.* would remain in favour of the city; and that, even after paying interest on an expenditure of 220,000*l.* for remodelling the whole water-closet system of the city, and providing plant and appliances to work the system, a balance of 5,439*l.* 10*s.* would annually remain in favour of the city.

The local association before whom the paper was read, it may here be mentioned, are anxious to give the fullest ventilation to all theories on the sewage subject, whether propounded by any of their own number or others who have given attention to it, and the committee are open to receive and consider all plans which may be submitted to them. We need scarcely say that we do not recommend Mr. Murchie's plan for their adoption.

BRONZE FONT AT OCHSENFURTH, BAVARIA.

IT would be difficult to describe the form of this font, but we give an illustration which will be more intelligible than any description. The font is said to be the work of Peter Fischer; the workmanship is exceedingly delicate. The eight bas-reliefs round the basin represent the following saints:—St. Clara, St. Henry, St. Catherine, St. Andrew, St. Killian, St. Burkard, St. Mary, and St. Barbara. This font, like some we have before mentioned, is cast in bronze.



BRONZE FONT, OCHSENFURTH, BAVARIA.

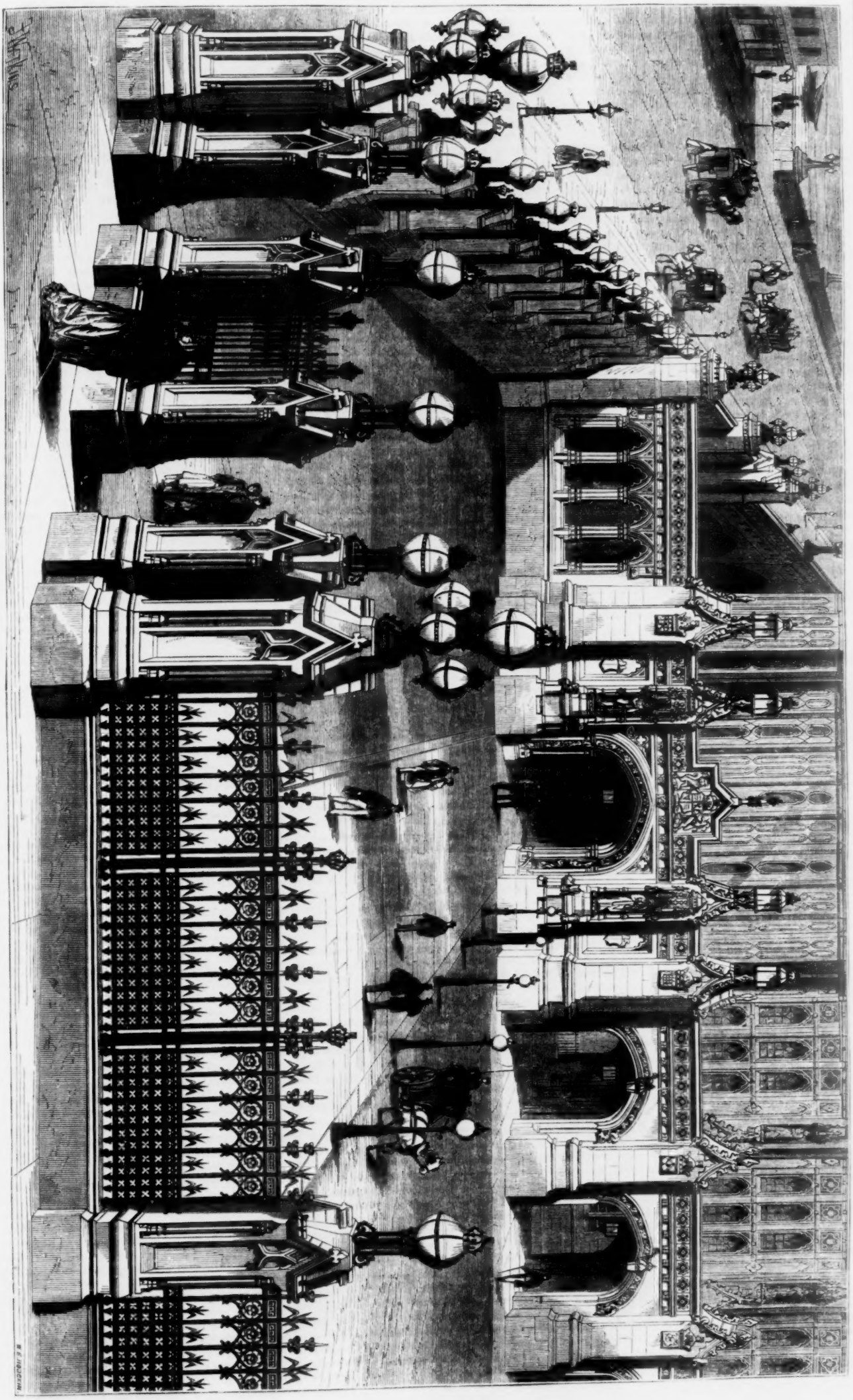
NEW PALACE YARD, WESTMINSTER.

THE design of Sir Charles Barry for the completion of his great work in Westminster, towards New Palace Yard, is familiar to readers of the *Builder*, from an illustration recently given in these pages, on the occasion of our notice of Dr. Barry's memoir of his father. The Government having left the question in abeyance, decided in 1864 to complete the unfinished western face of the Clock Tower, and to enclose the two open sides of New Palace Yard with an iron railing, sufficiently high and strong to exclude a mob on important occasions. The works now nearly completed, under Mr. E. M. Barry, A.R.A., and represented by our engraving, are the results of this determination, and consist of the facing with stone of the lower part of the western front of the clock tower, the erection of a very handsome iron railing, with gates and stone piers on the north and west sides of New Palace Yard, and the construction of a cloister or covered way on the eastern side. The railing is entirely of wrought iron, made by Messrs. Hardman. It is in bays of 17 ft. long, between piers of Portland stone, upon each of which is placed a globular lamp on a wrought iron standard. At the gates and angles the piers are larger, and are surmounted by clusters of lamps. Each bay of the railing is subdivided into three compartments by groups of standard bars, arranged on plan in the form of a cross. The ornamentation of the upper part of the railing is composed of the Tudor rose, well beaten up; and the lower portion displays the portcullis of Westminster. The globe lamps were manufactured by Messrs. Stevens & Son.

In the centre of the western railing, between the carriage-gates, is to be placed the statue of Sir Robert Peel, by the late Baron Marochetti; and the corner opposite to Parliament-street is the site allotted for Mr. Woolner's statue of Lord Palmerston. The tops, and some other portions of the railing and lamps have been gilt, by Mr. Crace.

The interior of New Palace Yard has been levelled throughout, and its surface lowered in some places as much as 10 ft., with the object of preventing the disagreeable effect of raking lines against the building, and of increasing the apparent height there of Westminster Hall. A portion of the plinth of the latter which has hitherto been buried, has been exposed to view by the excavations. The cloister along the eastern side gives a covered access, for foot passengers, from Westminster Bridge to the Commons' private entrance, and to Westminster Hall: a flight of steps leads from the bridge at the foot of the Clock Tower. It is intended to carry on the cloister, by means of a tunnel or subway, under Bridge-street, to the Thames Embankment and the underground station of the Metropolitan District Railway, about to be formed on the north side of Bridge-street. When this subway is completed, Members of Parliament and others, coming from the West End and City by the Railway and the Embankment, will be able to enter the New Palace by means of a covered way extending the whole distance, and almost on a level. They will thus avoid the necessity of ascending to Bridge-street, and descending again to the New Palace, having encountered by the way the dangers of a crowded crossing in Bridge-street increased by the accession of traffic coming to it at right angles from the Thames Embankment. The external design of the cloister is made to range with the existing archways and buttresses to the members' private entrance, with which it is joined, at the south-east corner of the yard. Two of the archways form carriage entrances to the Speaker's court, and these, with the archway in front of the Clock Tower, are flanked by niches, and are distinguished by their details from the rest of the arches. The niches are to be filled with statues of kings, by Mr. H. H. Armstead; those of Alfred and William I. are already placed in the niches near the Clock Tower. The æsthetic objection to leaving New Palace Yard open has always been felt to be the difference between the level of Westminster Hall (and consequently of the New Palace) and Bridge-street, causing the former to appear sunk in a hole. The erection of the cloister has been adopted as a mode of lessening this difficulty, by advancing the lower story of the building after the precedents of Belgian Town-halls, and other edifices. The cloister is rather higher than the upper part of Bridge-street, which it joins, and thus serves to mask, to some extent, the difference of level, and at the same time provides a convenient covered approach, as above described. Each bay of the cloister has a groined roof, with a circular aperture in the middle of each groin, covered by a sheet of glass. The groining of the bay next to Westminster Bridge, at the entrance of the subway, is square on plan, with diagonal ribs filled with perforated tracery. Polychromy is introduced in the interior of the cloister by the use of red Mansfield stone in bands, and for the groining ribs and bones. The exterior is entirely of Portland stone. The works are contracted for by Mr. W. Field, and the carving has been executed by Mr. T. Earp, and his assistants, in a bold and effective manner. Mr. E. C. Pressland is the clerk of works.

A PRESENT TO BOLTON.—Dr. Chadwick, who formerly resided and practised at Bolton, has intimated his intention of making a munificent present to the town. He intends to offer 10,000*l.* to be applied to the erection of working men's model cottages, the rentals from which are to be devoted to the maintenance of an orphanage which he proposes to erect. In the first instance, the orphanage will be for the admission of girls, but it will ultimately be extended so as to receive boys; and to carry out this benevolent design a sum of about 17,000*l.* will be necessary.



NEW PALACE YARD, WESTMINSTER.—MR. E. M. BARRY, A.R.A., ARCHITECT.

MURAL DECORATIONS.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE first ordinary meeting (after the recess) of this Institute was held on Monday evening last: Mr. David Brandon, vice-president, in the chair. M. Weale, of Belgium, author of various works on architecture, was elected honorary and corresponding member. Mr. Charles Innes, of Whitehall, was elected fellow, and Messrs. John Hebb, of Tollington Park, and E. H. Bown, of Harrogate, were elected associates.

Professor Donaldson announced a donation of 500*l.* from Mr. Tite, M.P., president, to the Library Fund, for the purchase of selected works on Architecture by English and foreign authors, of which the library is at present deficient. A special vote of thanks was passed to Mr. Tite for his munificent gift; and, on the motion of Professor Kerr, it was referred to the council to consider an appropriate form of recognition of the president's liberality and warm interest towards the Institute.

Mr. W. B. Scott read a paper "On Mural Paintings for Penkill Castle, Ayrshire." The subject of the pictures, of which the cartoons or preliminary drawings necessarily made when the artist has to paint on the wall itself were exhibited, is taken from "The King's Quair" or King's Book, by the first King James of Scotland, being already partly executed as the decoration of the walls of the circular staircase leading to the present drawing-room of Penkill Castle, the method employed being a kind of tempera,—the author could not call it encaustic, since heat is not applied to fuse the colours into the plaster. The medium used is a solution of wax in turpentine, and the use of this medium has been an experiment which Mr. Scott thought might be worth a few minutes' consideration. Having given a general description of the arrangements of this old "peel-house," or castle, as it existed up to the beginning of the seventeenth century, he went on to state that this interesting old place was left to go to ruin at the end of the last century, and when the late Mr. Spencer Boyd repaired and inhabited it, a few years ago, he built an entirely new staircase, more commodious than the old one, although retaining the newel form proper to the date of the house. It was for the decoration of this circular staircase these cartoons were drawn; and in carrying out the commission, the artist, being allowed to choose his own subject, selected an early Scottish poem, written by James I. of Scotland, when a prisoner at Windsor, in 1420, on his love for Jane, granddaughter of John of Gaunt, a poem in six cantos, in imitation of Chaucer, and one of the most beautiful and perfect productions of that epoch, although very little known. The pictures, six in number, illustrated the several cantos which Mr. Scott described. The first and second of these pictures, he stated, were painted on the wall in the summer of 1865, the medium used being, as already remarked, wax dissolved in turpentine, a medium frequently used in Italy for the common decoration, of which one sees so much there, and adopted by Mr. Parris, in going over the pictures in the cupola of St. Paul's. This medium Mr. Scott tried, in the first instance, on one of the figures of artists for the Museum at South Kensington, and as he was expressly required, at Penkill, to paint on the wall itself, he determined to try it on a larger scale. The effect was all that could be wished. He explained that when employed on a surface not previously touched, the turpentine is absorbed with a portion of the colour and the oil in which the colours are originally ground, whilst the wax retains a great amount of luminosity in the tints, with the uniformly dull surface absolutely necessary in wall-painting. The unity of surface is attained characteristic of fresco and the simplest tempera painting, with greater brightness in colours. The pigments used are not restricted to earths, as in fresco, but embrace nearly all the wide range now furnished by the colourmen, without any perceptible chemical change resulting, the medium employed penetrating the plaster sufficiently to protect the colouring matter on the surface from contact with the lime. Notwithstanding this, it was stated that the part of the wall which is exposed to the south wind, the wet wind in that locality, has in the course of the last two severe winters and wet springs shown symptoms of decay. The great enemy of painting in this country is damp, and it appears that no external wall, without sloothing or other means of ventilation, is a safe surface for the artist. Whether the wall in question had never been allowed to become dry during the four years from its construction to the time of the artist's commencing his operations, or whether the wet soaked through from without, in spite of the Portland cement with which it was painted from the first, was a question which no one seemed able to solve. The remaining portion of this south side has been lined with sheets of zinc, on which the future pictures will be painted, with what result has yet to be seen.

With regard to the remarks on a former occasion relating to fresco painting by gentlemen who appeared to urge the superiority and desirability of that method, Mr. Scott stated he was afraid that his assertion that it would never be practised again in this country, or perhaps anywhere else, might be construed as an effort at self-defence, the work he then submitted to the members being rather easel pictures than wall decorations, having comparatively little of the simplicity induced by tempera painting and necessitated by fresco. Such, however, was not the case; but a deliberate opinion, the result of many years' consideration. He did not mean that we should never see little pieces of fresco on lath-and-plaster frames, as we may see books illuminated by hand or imitations of ancient enamels; perhaps we might even see fresco on a small scale applied to some purpose by some one who persists in conjuring by an old form of incantation; and if the artist abstains from all colours but those composed of earths, if he has ten years to prepare his lime, if his wall is thoroughly protected and ventilated, if the weather is every day favourable, and if the artist has had a lifetime of practice, perhaps once more we might have a good result; but this was certain, fresco had had a revival of twenty years in England and forty in Germany, and all the best artists in both countries who had practised it—Kaulbach in Germany and Maclise in England — had gladly resigned it for the newly-invented *silica* medium. In Italy itself (continued Mr. Scott) the reign of fresco lasted little more than a century. All the earlier works remaining are tempera. Not many years ago it was not unusual to hear people talk of all Italian wall paintings as fresco; but it is quite certain no such thing exists. When the Commission was appointed to consider the application of painting to the new Houses of Parliament, in 1841, Cornelius, a German artist residing in Rome, was called over in November of that year; and the late Prince Consort, who was at the head of that Commission, seconded the views of his compatriot, and fresco was determined upon. Tempera and the earlier works were scarcely ever alluded to; and while the Munich frescoes—all the open-air ones, at all events,—were beginning to peel off, English artists who had never painted anything but *genre* pictures in oil produced those examples now going to pieces in the so-called Poets' Hall. Fortunately, the silica process was shortly afterwards discovered, so that Maclise, the greatest of English historical painters, and one of the greatest European artists, has been freed from the waste of energy and danger of premature decay in painting his two great works, "Waterloo" and "The Death of Nelson;" but the last years of Mr. Dyce were embittered by the difficulties, delays, and repaintings involved in this primitive process, fitted only for a dry climate and a summer of continuous equable temperature.

Professor Donaldson, in proposing a vote of thanks to Mr. Scott for his communication, referred to the unsatisfactory results which had invariably attended fresco painting in this country. Notwithstanding the most diligent researches on the part of the late president of the Royal Academy, both as to the surface of the walls and of the materials to be used in the case of the decorations of the corridors, &c., of the new Houses of Parliament, it seemed that all the endeavours of artists to conquer the difficulties of fresco painting, so as to render it imperishable, were always frustrated. He thought we might look with great hopes to the new process of water-glass painting; but even where that process was adopted, there was a dampness which covered the surface, which, though not chemically affecting the picture itself, was prejudicial to the just appreciation of it as a work of art. Under these circumstances it was gratifying to find that a gentleman like Mr. Scott, with his large practical experience and knowledge of his art, had adopted a process which he believed was calculated to be successful in this country.

Mr. Scott remarked that the effect upon the surface of the pictures in water-glass mentioned by Professor Donaldson arose from the accidental circumstance of too great a quantity of silica having been dashed upon the surface with a large and clumsy kind of brush, instead of by the more careful method of using a syringe for the purpose; and that tended to impart a whitish bloom to the surface of the picture. He believed it was Mr. Maclise's opinion that that effect could be removed without injury to the picture.

Professor Kerr having offered some critical observations with regard to the disposition of the pictures before them and the treatment of the figures, remarked that the practical question of damp in walls was one which ought not to be passed over by a body like this without some consideration. They all knew very well that a stone wall, even when built of granite, would draw the water through several feet thickness. It seemed to him the best advice to be given with regard to walls on which these kind of paintings were to be placed was to treat them with one or other of the recognised stone-preserving processes: probably that of Ransome was the best for the purpose. If that were not successful, it might be desirable for the sake of the paintings to coat the outside walls with some material impervious to wet, as paintings of this description should not be allowed to go to ruin from the unfortunate state of the stone wall on the outside. With regard to the water-glass pictures in the Houses of Parliament, he thought that process would eventually prove to be a mistake, because silicate of potash has a very strong attraction for the moisture of the atmosphere, which might produce a damaging effect upon the pictures. Even where the water-glass was treated with chloride of lime, there was a large quantity of salt thrown off; and, until that was got rid of, there was a strong tendency to absorb moisture. With regard to the material Mr. Scott was employing in the execution of these pictures, he had no opinion to offer; but he strongly advised that gentleman to reconsider the idea he appeared to have formed, of painting any portion of them upon plates of zinc. It would, in his opinion, be preferable to remove the portion of wall which showed appearances of dampness to a sufficient depth, and replace it with a composition of a more satisfactory kind.

Mr. Charles Barry complimented Mr. Scott upon the successful treatment, as he regarded it, of the subject he had taken in hand, in this, as in the former case, which he brought before the Institute. Looking at the instance now before them, he hoped Mr. Scott would be able to find some means of protecting the inner surface of the walls from damp, without depriving the external wall of its original stone character, and not sacrifice the ancient glory of the exterior of the building by coating it over with a foreign material. He suggested two ways of obviating the difficulty of damp in the wall. The most obvious one, if they had any apprehension from the porosity of the material, that the moisture would get through, was to make an inner wall, with instertices of space between it and the outer wall. He agreed with Professor Kerr in the caution he had given, as to the contemplated use of zinc plates, on which to paint the pictures remaining to be executed.

Mr. Wm. White, after some general remarks on the treatment of mural painting, observed that he had seen several of the pictures of Mr. Gambier Parry, which he understood to be in a sort of tempera, and he did not know of an instance in which they had failed. With reference to the use of zinc plates, he had been informed by decorators, that thoroughly scrubbing the surface of the metal, and either gilding or silvering it over before the paint was applied, a very excellent and durable surface for painting upon was obtained. A further suggestion was that zinc paint should be used instead of lead paint, inasmuch as the latter would set up galvanic action, which deteriorated the surface. He agreed that the most efficacious way of keeping damp from pictures of this kind, was the plan of double walls, in which case any dampness that penetrated through the outer wall dropped down, and left the interior wall, ventilation being duly attended to, perfectly dry.

Mr. Barry hoped that the notion would not be endorsed by the meeting that gilding or silvering of the zinc plates would prevent the destruction of the surface by galvanic action, inasmuch as a greater amount of galvanic action was set up between metals of different degrees of oxydation.

After some further conversation, in which Mr. Wyatt Papworth, Mr. Charles Fowler, and

Mr. Collman took part, the vote of thanks to Mr. Scott was unanimously passed.

A short paper by Mr. J. MacLean descriptive of "The Old Roof recently discovered over the Nave at West Church, Stirling, N.B.," having been read, the meeting adjourned.

THE STONEWORK OF LONDON AND PARIS, CONTRASTED.*

IN the first place, we will look at the method of building, and then at the quality of the work, and the scaffolding used for the purpose. We will take Paris first. In 1862 I visited Paris, and while there saw most of the large works which were in course of erection, such as the Great Northern Railway Station, the new Opera, and many others which I need not mention. The first thing that struck my attention was to see all the buildings constructed from the stone as it left the saw; that is, not worked on the face. I saw the men working the stone *after* being fixed, and came to the conclusion that there was something deficient either in the contractors, or in the managers of the several works, and those impressions were confirmed when I visited Paris in September last. While there I again had the opportunity of visiting numbers of large works in course of erection, and on examining the mason-work I found it would not bear the inspection which mason-work ought to be able to bear. Now a word or two on their method of building. I was much struck with the method they employ in fixing their work. They have one or two hoisting-places, as the case may require. The stone is lifted up at these places and rolled from the place where it is landed some 20 ft., 40 ft., or even 80 ft. on the wall. I saw them roll a stone, some 7 ft. by 3 ft. by 2 ft., on a wall some 5 ft. or 6 ft. thick. This stone was rolled about 70 ft. by 8 or 9 men with bars. It is then laid in the required position, lifted up some half an inch from the stone below by bars caulked all round with rope or some soft material to prevent the mortar from running out from the horizontal bed. It is fixed,—in fact, by a process of grouting. You must bear in mind that this stone was rough on the face. Most of the horizontal beds are grouted with plaster and dust from the stone. These beds are from $\frac{3}{8}$ in. to $\frac{1}{2}$ in. thick. This style of fixing I saw at the New Opera, which has recently been uncovered. This method of grouting the beds they have found to be an improvement on the old method of fixing. Another thing which I saw was the party walls of the houses left some $\frac{1}{2}$ in. or $\frac{3}{4}$ in. from the front wall; that is, not worked close up to the bond. This space is to allow for swelling, as the party walls generally swell, and would otherwise push out the front work. I need not mention that the want of connection of the party walls with the front walls causes very unsound work.

We will now look at the quality of the work as done in Paris, and from the facts which I shall mention, we shall be able to judge which is the best method when our own work is described hereafter. All their projections are roughly cut out before being fixed, and after being fixed, they commence at the top of the building to form the moulding roughly with chisels almost similar to our own. After they have attempted to put them in shape by the chisel, they scrape them over with a tool something like a plane. On passing along the scaffolding, I noticed the manner in which the men generally hold their tools, which perhaps some of our Englishmen have noticed. The tool passes from the thumb over the little finger, or under three fingers and over one, and they use an oblong mallet. One could not help noticing the attitude in which these men work; some are sitting down, some kneeling, and some standing. The slow motion of the mallet also drew my attention. The sound of the first blow had disappeared before the second one was given. Some of the men were working a plinth of a hard stone, kneeling and sitting down to it, the plinth being before them in a perpendicular position, fixed in the building. I shall have more to say on this part when I draw the comparison between the London work and the Paris work.

The scaffolding now claims our attention. Their lifts generally are square on plan, with a large piece of timber at each angle. These pieces are braced together, and act as standards, regulated according to the height the lift is required. Some are worked by hand and some by steam; they are fixed at the most convenient points of the building; and right and left of them a scaffold is erected for the men to fix the stone, and also to stand on to work the stone when fixed. This sort of scaffolding seems to be woven into the nature of the French people. Wherever you go, you see this style of scaffolding used, and some of these lifts were exhibited at the Exhibition.

I will now draw the contrast between the French work and our own, so that we may be able to judge whether our fixing, working, and scaffolding are equal or not to the French.

It is well known that most of our fixing is executed by the use of the "traveller," by which we lift the stone, in place of the French lift. If it is necessary, we have one traveller on the top, in addition to the one we lift with. If the stones are not too heavy, several are lifted together. The edge of the stone is brushed off, and then wetted. A soft bed of mortar is laid on the lower stone. The ends of the stones are generally grooved, and run with cement. The fixer can lower the stone on the bed, and seldom does he require to lift the stone a second time if he be master of his business.

It has been said that we cannot erect a stone building so quickly as they can in Paris. I think we can. By the above method, I have seen from thirty to forty stones fixed in ten hours; and a stone front, 150 ft. long and 100 ft. high, with mouldings and projections, columns and caps, fixed in twenty-five weeks, including building the scaffold. I have also seen 40 tons of stone lifted 70 ft. high in eleven hours; and stone 15 tons lifted 34 ft. from the ground and fixed in two hours. This is quite sufficient to enable any one to judge which is the quickest way. I have come, indeed, to the conclusion, that we can fix six times the quantity of stone that the French can in a given time, and with half the number of men. If the contractor or manager of the New Opera had erected a timber scaffold, such as I have described, instead of having nine men to roll the stone to the appointed place, three men would move it, and a fixer and his man would fix in a given time six times the quantity of stone than they now fix. It must be a great saving to the contractor to have six times the amount of work done with half the number of men, and, moreover, the work done by this simple method will be much sounder. As we mentioned above, the party-walls were not worked into the front walls to allow for swelling. This swelling might be prevented, and the walls could be joined together, if they were to use more sand with the plaster employed as mortar, and keep the stones well wetted while being fixed; or, if they use lime for mortar, the mortar should be made up some two or three months before being used, and then tempered up again. Treated in this manner, mortar will not swell, but will set hard. The fixing in Paris is not good, because it is impossible to fix ordinary stones by hand to make that sound work which is required; and it is also impossible to wet the beds of the stone sufficiently as the Paris stone requires when fixed by hand.

Let us now look at the contrast between their work and our work. In the first place, it seems to me that the foreman of masons in London requires more thought and talent than the foreman in Paris. Here all the mason's work is got out to dimensions worked on the banker, and jointed to sizes to fit the position where it is intended to go. Blocks of some hundreds of different dimensions, and for many jobs, varying in shape and form, all worked true and straight so that when fixed, they will require no working. I have seen on one job twelve or thirteen hundred stones all worked before the commencement of the fixing. I mention this in proof of what I said above in reference to the foreman. These stones have a bare $\frac{1}{4}$-in. bed, and 1-16th in. joint instead of the $\frac{3}{8}$-in. bed of the French style. The mouldings at Paris which have been worked after being fixed, have scarcely a straight portion two feet long in them, and the mode in which they are niggled and scraped about is almost a disgrace to the empire to which Paris belongs. I mentioned above the attitude in which the Paris workmen work. In London the men generally stand upright to their work. If my readers had been with me and seen the position of the men working the plinth at the New Opera, they would have come to the conclusion that these men had recently been imported from some island where mason's work was never done. I mentioned too the manner in which they hold their tools. This manner is a great hinderance to the progress of the work, as is also their sitting and kneeling down. In these positions they cannot put forth the strength required. The business-like way is to stand upright, and have the stone before you so that the weight of the mallet when lifted up will cause it to drop down with the force required. In the French method you have to push, the mallet from you to the work, which will not come with such force as if the men stood upright, and let the mallet drop down.

I will now mention our method of timber scaffolding, so that you may judge between ours and the French. Our scaffold varies according to the weight we have to lift: we always pitch the standard inside and outside of the wall at a proper distance, so as to allow the scaffoldings to be erected, one for the masons and one for the bricklayers. The standards are some 12 ft. apart, and 10 in. to 12 in. square. This scaffolding can be taken up to any height that may be required by throwing out braces and forming cross ties. The span from the inside to the outside will be regulated according to the thickness of the walls and the convenience of the rooms. When the scaffolding is erected to the height required, horizontal pieces of timber are laid across to brace the iron metals to; then we have two pieces of timber which answer as trusses, resting on either side of the horizontal timber on a cradle with two wheels at each side: this is moved about by cog-wheels. A jenny is placed on the top of the trusses, which is also moved in a similar way. This jenny travels on the metals above mentioned, and is constructed so that the block and fall may be attached to it. In many cases the traveller is worked from the centre as well as the jenny. The timber scaffold saves all poles for standards: you want only the horizontal poles for ledgers. The French people have a pole scaffold inside and out; but if they were to adopt our plan of scaffold, it would be a great advantage to them, both in time and money. A timber scaffold may be regulated to any strength required, and can be erected to any ordinary small front as cheap as, if not cheaper than, a pole scaffold. There is a timber scaffold in Hyde Park, at the national memorial to Prince Albert, which is an exception to the general rule of scaffold for strength. It would be of some advantage, perhaps, to the French mechanics when visiting London to look at it. I might have entered into this subject on a much larger scale, but have mentioned a few plain facts, so that readers may be able to judge if the English method of fixing, working, and scaffolding, is not better than the French.

I might have expressed a few thoughts also on the brickwork of Paris, but suffice it to say that in some of the brickwork the mortar joints were not close like ours, but almost as large as the bricks. Since the mortar they use swells, the more mortar they put in the beds the greater will be the swelling. The remedy for this swelling would be as above described, and keeping the joints to $\frac{1}{4}$ in. or to $\frac{3}{8}$ in. thick; then they would not have any explosion in the brickwork.

* The following remarks are by a practical man, Mr. William Cress, manager of works at the Prince Consort Memorial, Hyde Park.

THE CO-OPERATIVE MOVEMENT.

A GENERAL meeting of operative masons has been held at Wilcocke's Rooms, Westminster-road, for the purpose of hearing from Mr. Alfred Walton, architect, a proposition for the formation of a co-operative building company among the different branches of the building trades' operatives. The chairman having opened the business, Mr. Walton said he had come specially to London to address the men in the five branches of the building trades—the masons, bricklayers, plasterers, joiners, and painters, each body separately, for the purpose of ascertaining if there were not a few hundred men in each trade, out of the many thousands composing them, prepared to unite together and establish a building company on a large scale on the co-operative principle. He believed if they carried out the principle to any extent it would do more than anything else to counteract the evils of lock-outs and strikes. He then went on to detail his plans at some length. He would recommend the shares to be fixed not higher than 1*l.* each, and that as soon as 500 members had taken up and subscribed for their shares, business should at once be commenced. He referred to what

had been done by the masons of Scotland, who a few years since had begun in a more humble manner, and had built several squares and terraces of large and substantial houses. Mr. T. Conolly, a mason, who had been sent over to the Paris Exhibition by the Society of Arts to inquire into and report upon French masonry, gave a full and interesting account of the successful working of the Co-operative Masons' Society of Paris, who were now executing some half-dozen of the largest building contracts in the city of Paris. He cordially recommended the proposal of Mr. Walton to the consideration of his fellow-workmen. A long discussion ensued, and a resolution was adopted approving the plan laid before the meeting, and calling an aggregate meeting of the whole of the London masons, unionists and non-unionists, further to consider the subject.

A meeting has been held at Heckmondwike in connexion with the Co-operative Society in that town. Lieutenant-Colonel Firth presided. The report submitted was of a very favourable nature, showing the society to be in a flourishing condition. Mr. Powell, M.P. for Cambridge, was present, and delivered an address, in the course of which he observed that it was the desire of every member of the Houses of Parliament to give to his working fellow-citizens every means and every facility whereby they might combine for purposes calculated to promote their happiness, or to increase their wealth. If there was any country calculated to be the field of successful co-operation, he believed that country was England. If there was one national instinct more strong than another, it was the instinct of association. Mr. Powell quoted statistics in respect of the condition of co-operative societies in England. He saw it stated that there were in England at the end of last year 752 societies, but out of these only 436 sent in their reports to London. In these 436 the number of members was 173,000. The cash received for goods sold in the year ending 31st December, 1866, was 4,445,000*l.*, and the total value of assets and property was somewhat more than 1,000,000*l.*, but on the other side of the account the total amount of trade liabilities was 334,000*l.*, being a very large balance in favour of co-operative associations. He did not believe that any great revolution would be brought about by these societies—he meant any fundamental revolution entirely changing the condition of affairs which we saw around us; but he believed that by means of these co-operative associations friendly relations might be brought into existence between different classes. By their agency the labouring and working man, himself having capital, would sympathise more with the trials and the difficulties which beset capital; and, having some property himself, he would understand more how to value and how to defend it. Mr. Powell, in closing, urged that working men by being members of a co-operative association would benefit themselves, and be enabled the better to educate their children.

A lecture was lately delivered by Professor Fawcett, at the Workmen's Hall, Barnwell, before a crowded audience. The lecturer said, in 1844, twenty-eight poor weavers in the town of Rochdale thought they could improve their condition by clubbing together their small savings, and then purchasing commodities at wholesale prices and selling them out by retail. They were so poor that they could not embark in a large way, so they put into a common fund 2d. per week, which was increased to 3d., and at length gathered together over 20*l.* With this a few articles of grocery were procured at wholesale prices. They soon found that there was a considerable profit on the transaction, and in 1864 the number of members was 4,747, while the profits amounted to 20,000*l.* a year. Their success, said the professor, was mainly owing to a rule they laid down when the society was established, from which they never departed; if they had departed from it he had no hesitation in saying that the scheme, instead of resulting in most splendid success, would have been a disastrous failure. That rule was, that under no circumstances whatever should any credit be given. The result was that from the establishment to the present time there had never been a single farthing of bad debt. Proceeding, he observed that within the last few months a co-operative society had been formed at Barnwell, and although the amount of business might not be now large, yet, if it was carried on upon the same principles, and with the same skill as that at Rochdale, there is no reason why similar success should not be realised, and the same benefits would then be conferred upon them as upon the labouring community of Rochdale. But, though he had spoken of the Rochdade Society in flattering terms, he was anxious to impress upon them that that institution did not illustrate co-operation in its highest and most useful form; in fact, defining co-operation strictly, it scarcely deserved the term. What he understood by co-operation was a union between capital and labour. Unfortunately for the industrial interests of this country they were thus divided: the capitalist found the capital, and another class the labour; the capitalist was remunerated by profit, and the labourer by wages, and there was no connexion between them but a pecuniary one; the capitalist was anxious to hire labour at the lowest, and the labourer to sell at the highest price, and this led to the most baneful antagonism. How much better a system might be introduced. The Professor mentioned that in Manchester there existed a co-operative society of hatters, and in London of picture-frame makers, and then proceeded to state that on the Continent they were more frequent than in this country. Some said the French loved co-coperation, because they were socialists and communists. Socialism and communism were most impracticable schemes; but they were not wicked ones, and socialists and communists, though their schemes always had resulted and always would result in failure, deserved this praise, that their advocates first established co-operation. It could not be said that they were bad and wicked men, but enthusiastic, and their enthusiasm was always directed to what good they could do for their fellow men. He gave instances to prove that beneficial co-operation between capital and labour was not a utopian idea, but one that could be realized, if those who engaged in it had sufficient moral qualities to combat the first difficulties they had to encounter. Modified results might be obtained by some co-partnership schemes between capital and labour, and he thought those schemes would become most common in England; they would be transitional as it were, and would prepare the workmen by degrees for something higher.

PHYSICAL COMMOTIONS THROUGHOUT THE GLOBE.

AT the beginning of last month we drew attention to the curious coincidence of hurricanes or cylones, earthquakes, and volcanic eruptions which was then occurring. Since that time at least thirty earthquakes have been announced as having taken place at St. Thomas, where the great hurricane played such havoc; and in America generally there have been many earthquakes, both in the States and in Canada, and long-extinct volcanoes at Rota, in Nicaragua, on the western slope of the American high-land, have broken out afresh, blazing with a light which lighted up the cathedral-towers of Leon city, ten miles off. Vesuvius is still becoming more and more active; and not long ago Hecla had a tremendous outburst. Even in this country there have been slight shocks of earthquake in the west of England. In September last we collected together and published in the *Builder* accounts of a most unusual number of casualties by lightning, far beyond anything we recollect of having ever occurred in this country. What does it all mean? Are we on the eve of some great geological crisis or convulsion? or is it merely a passing throe, anticipative of, or preparative to, some such great crisis in a future age?

GUISELEY NEW TOWN HALL.

ON the 26th ult. this edifice was opened with a performance of the "Messiah." The building is prominently situated on a site of 1,200 yards of land at the end of the town of Guiseley, near to the railway station.

The arrangement in the building for the local government offices consists of a board-room, clerks' offices, fire-engine room, lamp-room, &c. The rooms set apart for literary and educational purposes, comprise a public reading-room, 30 ft. by 17 ft., a large room for library, a school-room, 32 ft. by 18 ft., class-room, lavatory, and conveniences. The whole of these rooms are heated by hot-water pipes. The public lecture-room is 65 ft. long, 36 ft. wide, 27 ft. high, and will accommodate upwards of 800 persons seated.

The platform and gallery for orchestra are placed at one end, and a gallery at the other. The principal entrance is 24 ft. by 13 ft., with a flight of stone steps to the lecture-room and gallery. The erection of the building, which is due principally to the munificence of Mr. M. W. Thompson, M.P. for Bradford, has been effected at an outlay of about 3,000*l.* The contractors, who have executed the works from the designs of Messrs. Knowles & Wilcock, architects, of Bradford, are Messrs. Freeman, masons, of Otley; Jessop & Westmoreland, joiners, of New Wortley; Mr. A. K. Kenyon, plumber, of Yeadon; Mr. Alfred Firth, plasterer, of Rawdon; Mr. Edwin Thornton, slater, of Shipley; and Mr. Edward Haley, painter, of Bradford. Mr. Abner Rhodes, of Bradford, was clerk of the works. It is intended to transfer the building, under certain trusts, to the members of the local board, as trustees for the time being, for the benefit of the public of Guisseley for the purposes of education, and for the transaction of the town's business, making it, in fact, into the town-hall of the place.

REREDOS, ST. PETER'S, THANET.

A REREDOS has lately been erected in the parish church. It consists of a retabulum in stone, in which are sunk a central niche, flanked by two quatrefoils, each filled with mosaics. The former bears a white marble cross, and the latter contain angels carrying shields charged with the sacred monograms IHC and XPC respectively. Wheat and vine are carved on either jamb of the central niche, and the whole is surmounted by a cornice of leaves, severe in form. The wall on the sides, up to the height of this cornice, is lined with slate slabs, with a rough face, and having the Creed, Lord's Prayer, Commandments, and apostolic emblems painted on them in oil, and in the last and largest space, the pelican, as an emblem of our Lord and of the Holy Communion; below them is a dado of marble and alabaster inlay. This and the stonework were executed by Mr. Thos. Earp; the painting and mosaics were done by Messrs. Heaton, Butler, & Bayne, from the designs of Mr. Edward J. Tarver, architect. The whole was put up by a subscription amongst the parishioners, raised by Mr. Thomas Gray, of Orlibar House, whose family have long dwelt at St. Peter's.

"WHO SPOILT THE PARLIAMENT HOUSES?"

SIR,—The petulant tone of Mr. Fergusson's letter, in the *Builder* of the 4th inst., convinces me of the soundness of my judgment in hesitating to submit my case unreservedly to the decision of a committee of which he would possibly have been a member.

While, on the one hand, the evidence he has examined compels him to give a verdict, to a certain extent, in my favour; on the other, the almost childish delight with which he perverts it into an opportunity for vilifying my father, is so clumsily disguised as to make his criticism of little value.

1. Mr. Fergusson is not satisfied with having to find *on* the evidence, but he advances a question totally foreign to it. His letter is as ingenious as it is disingenuous. Never mind who "*spoilt*" the Houses,—that is a question of principle and taste. Who produced the original designs in 1835 before they were "spoilt?" Mr. Fergusson having come forward to record his decision on a proposed examination of my pamphlet, I refuse to release him from his obligations to meet the main question and the evidence on which it rests. At present he has only admitted the force of what is supposed to prove that my father "spoilt" the original designs; but he ignores altogether the evidence on the special point in dispute, and assumes that Sir C. Barry was the real architect, for the sole purpose of propounding the absurd, though amusing theory that my father "spoilt" all Sir Charles's work by his "crotchets." My evidence all proceeds from the same sources. Half of it proves that Mr. Pugin spoilt the other half, says Mr. Fergusson; therefore Pugin was the author of the bad half,—Sir Charles Barry of the good. I do not know whether Mr. Fergusson is a Cambridge man; but I doubt it. Meanwhile, what becomes of the Messrs. Barry's emphatic denial, and Mr. Wolfe's assertion, "that all the import-

ant changes in the building which decided its character were originated and designed by Sir C. Barry alone, in the country, when he was *not* in communication with my father."

2. I beg to remind Mr. Fergusson that I qualified my statement about Sir C. Barry being the sole author of the "plans" of the Houses, by suggesting that even these must have been modified by the exigencies of the elevations. The formality and regularity of the south front do not necessarily prove that it was originally the design of Sir C. Barry, any more than the substitution of "pierced panels and an unmeaning net-work of flat overdone ornament" for "windows grouped together with deep reveals" and massive "buttresses," prove that Sir C. Barry was over-persuaded by my father to relinquish the latter, his own design, for the poverty and flatness of the present elevations. Setting aside the gratuitous assumption of all this, the direct opposite is the more probable fact. Who better than my father could appreciate "deep reveals" and grand effects of light and shade, and who knew better how to produce them? I shall be happy to submit to Mr. Fergusson a design of my father's, prepared in 1833, showing a façade quite as regular as that of the Houses of Parliament, having "windows grouped together with deep reveals and considerable light and shade obtained by the form of the buttresses." The real truth is that my father's original work was "spoilt" by Sir C. Barry, to whose decision, so far as "architectural arrangement" was concerned, he was obliged to yield; and Mr. Fergusson shows his entire ignorance of my father's early works in propounding a supposition which entirely reverses the probabilities, if not the facts, of the case.

3. The cat-and-kitten *simile* is, no doubt, remarkably amusing and quite satisfactory to Mr. Fergusson, but, for the life of me, I cannot see the point of it. As an architect, I know that contrast is the essence of effect: I know also that without contrast size is neither adequately distinguished nor appreciated. Neither do I perceive the value of Mr. Fergusson's application of his criticism to the entrances under the Victoria Tower. At all events, he has failed to perceive from Sir C. Barry's own letter that *he himself sent the "plans" of this part of the building to my father to design the elevations, and at the same time furnished the dimensions for them.* But considerations as to the true apportionment of the various parts of the work to their relative authors do not seem to trouble Mr. Fergusson in the pursuit of his extraordinary proposition, — "*All that is Pugin's is bad: all that is Barry's is good.*" That is enough for him. His partiality is as plain as it is pungent. A fair and equitable judge truly in deciding on the present rival claims!

4. As regards the Victoria Tower, the entries in the diary prove that my father was at work on the original production, and few will accept Mr. Fergusson's oracular denunciations of its present appearance. He complains that an "extinguisher" caps the clock tower, instead of the beautiful design as originally published. One may well question Mr. Fergusson's competency to set up as an architectural critic if he desires to see a spire on the *present* clock-tower; but what will he say when I tell him that such a spire on a clock-tower, proportioned to it, is actually executed at Scarisbrick Hall, whither I shall be happy to accompany Mr. Fergusson whenever he may claim my promise to do so. This building was designed and partly carried out at the same time as the Houses of Parliament, and is sufficiently successful to elicit from one of the first statesmen of the day the following expression: "If I have reason for not believing all that you claim for your father regarding the Houses of Parliament, it lies in the fact that the work at Scarisbrick is so much bolder, effective, and more successful than that at Westminster."

Mr. Fergusson contrasts archæology with architecture, as though the results of the two studies were absolutely incompatible with or spoilt each other; and that whilst the Gothic revival had alone been archæological, the Classic were quite free from this vice, and altogether creative. But I should like to know, if my father and others of his contemporaries had not been archæologists, where would Gothic architecture have been?—confined, I imagine, to such specimens as Sir Charles Barry's original churches, of imperishable mark, which are certainly as free from archæological copyism as his Classical buildings are, for the most part, mere plagiarisms as existing edifices. There is quite as much, if not more, archæology in Sir C. Barry's Palladian or Renaissance structures as in any Gothic works I have ever seen, and as perfect a freedom from the true originality of genius. Successful more or less, as reproductions or adaptations of existing works, they may be, but original productions they are not. And why it should be culpable and ridiculous to revive the glories of an old minster or civic hall, but praiseworthy and excellent to transfer the Farnese Palace or the Venetian Library from their own sunny soil to a London street, I am at a loss to conceive; or why the architect in his study and adaptation of the latter buildings should be less an archæologist than the architect of the former. What Mr. Fergusson from his normal condition of fretfulness and querulous dissatisfaction ridicules as a fault in others he exalts as a merit in Sir C. Barry. Happily he is always in such exaggerated extremes of praise or blame, that his judgment in questions connected with Gothic art has little influence, and we may be allowed to place his taste on a level with his impartiality. He has often done great service in destroying monsters, but he must leave to others the task of restoring what they have laid waste. A man who stigmatizes an architect like Mr. Street as a mere archæologist, is but little likely to do more than destroy. Mr. Fergusson stands in relation to architecture as Mr. Carlyle does in some respects to philosophy: he can tear a fallacy to tatters, but oh! for something good to replace it. Mr. Carlyle, however, thinks. Mr. Fergusson assumes and decides. *Sic volo, sic jubeo; stet pro ratione voluntas.* (It is an idiosyncrasy of his literally to rage in the presence of Gothic art. He must be exorcised before he can pronounce on its merits).

E. WELBY PUGIN.

SOME SUGGESTIONS.

Snow in the Roads.—I beg to suggest that snow could be speedily and economically removed from roads and streets by a few yards of stove-piping laid along the gutters (the ends partially stopped with a brick), having a few strong gas-jets flaming within. All snow swept or shovelled against it would instantly melt and run down the gratings.

A Foothold for Horses.—Short steel spikes (similar to cricketers' spikes) could be made to clutch *firmly* the rim of the horse-shoes, thus enabling the horse to have a sure foothold on frost-bound roads. They could be fixed quickly, as many to each shoe as deemed needful. They would not clog, and could be renewed at a penny each.

A Plea for worn Flagstones.—I recently noticed some paviors wantonly breaking a great many old stones, some large and in tolerably good condition. It seemed a pity, when so many places are yet unpaved. Why could they not be disposed of cheap, the same as old bricks?

Water and Fire: Plugholes in the Roads.—Would it not be an improvement to remove them to a cut bay or recess in the curbstone? They would be easily found on emergencies, and not so liable to get clogged with stones, dirt, &c., as they are daily now.

R. T.

THE THAMES EMBANKMENT.

AT the meeting of the Metropolitan Board of Works, Mr. Bazalgette, the chief engineer, presented his report on the progress and cost of the Thames Embankment. As regarded that portion between Westminster and Waterloo Bridges, the whole of the dams had been completed, and considerable portions thereof had subsequently been removed from the face of the work. The Westminster Steamboat Pier and the Charing-cross Steamboat Pier were in progress, and other necessary works were considerably advanced. Filling-in behind the Embankment walls and in the works generally had been carried out to the extent of about 500,000 cubic yards. With respect to the contract between Waterloo Bridge and the Temple Gardens, a length of 1,290 ft. of the parapet was complete, and there remained but 210 ft. to be formed to complete the entire length of the river wall comprised in the contract. The Temple Steamboat Pier was also in a forward state, not more than 2,000 cubic feet of stone, the whole of which was upon the ground, being required to complete this portion of the work. The approximate cost of the whole of the works executed, including 350*l.* for the materials upon the ground, was 224,600*l.*, of which the sum of 1,069*l.* was due to the progress made in the past month. As regards the south side of the river, of the 2,370 ft. of dam and stageing constructed between Westminster and Lambeth Bridges, 1,100 ft., had been removed from the face of the works. Within the completed dams a length of 1,900 ft. of the river wall had been constructed to a height of 7½ ft. above Trinity high-water mark. The approximate value of the whole of the completed works, including 23,800*l.* for the materials upon the ground, is 147,000*l.*, of which the sum of 1,000*l.* was due to the progress made in the past month.

HOW THE THAMES EMBANKMENTS ARE GETTING ON.

SIR,—It may be interesting to your readers to have placed before them the following summary of progress during each of the past seven months of the three contracts at present let of the Thames Embankment:—

1867.	No. 1, North. Mr. Furness's.	No. 2, North. Messrs. Ritson's.	South. Mr. Webster's.
June	£7,555	£1,137	£2,000
July	8,011	1,106	1,500
August and September	16,800	3,127	8,500
October	11,000	1,566	5,220
November	6,000	3,346	1,000
December	7,000	1,069	1,000
Seven Months	56,366	11,353	19,220
Total done to end of 1867	435,000	224,600	147,000
Total to complete	85,000	4,400	162,000
Total of Contract	520,000	229,000	309,000

JASPER.

SNOW AND THE SEWERS.

SIR,—The original idea of using the main sewers for the removal of snow from the streets was mine, and was made public in the *Builder* last January. If the snow be put down the sewers, whether it be melted by "gas-jet," "steam-jet," or "water-jet," I claim the original idea of using the sewers for that purpose. This plan was never put in practice until I suggested it.

JOHN PHILLIPS.

HOME COLONIZATION.

"We've got no work to do."

SIR,—As the columns of the *Builder* have always been open to suggestions for social improvements, I hope this privilege will be accorded to the following on home colonization. In this large manufacturing community, where fluctuations in trade are inevitable, the choice of a trade perfectly free to every youth, and from several other causes, an excess of craftsmen over the labour in demand will repeatedly occur. How may this be alleviated? By emigration to the colonies, is the ready reply. Nor do I deny that this is the true *dernier ressort* of overpopulation: but there is yet plenty of room at home if labour could be better distributed. It has, I believe, been officially stated that "there is in this country as much cultivatable land lying waste and profitless as would employ all the unemployed in England." Now the English people, with their usual tenacity to any notion they have once adopted, rest in the delusion that going half round the world, paying large sums for passages, outfits, &c., has some peculiar efficacy in establishing all who go through the preparatory process, in opulence in a distant colony. This is a great mistake. There is no special virtue in the mere expatriation, but, on the contrary, a loss of human power and energy to the old country; the most vigorous and enterprising leaving a constantly-increasing residuum of enervated and unhealthy population behind: in fact, distant colonization is doing in some measure for England what continuous war did for France. Now the virtue of a colony lies intrinsically in this,—the withdrawal of surplus labour from overcrowded centres and re-aggregating it in natural proportions. This might be accomplished as well, and at less cost, upon the cultivatable, but at present neglected, lands in Great

Britain. To do this scientifically, statistics should be consulted, in order to obtain an approximate idea of the relative proportion which different trades have to population. A capitalist so informed might establish a colony which would well repay a large outlay. But a national scheme of home colonization could be devised, which would effect a redistribution of labour highly advantageous to the happiness and prosperity of the country.

W. CAVE THOMAS.

*** The question, of course, would be, can the land be made remuneratively productive? There is no doubt that much of it could be made so. We may mention that for some few weeks past, an "Association for the Employment of the Destitute Poor in Reclaiming and Improving the Waste Lands of the Kingdom," has been in progress of formation.

THE DEATH-PLACE OF GIBBON.

"CURIOSITIES OF LONDON."

THE very interesting leading article in last week's *Builder*, founded on Mr. Timbs's admirable book on the above subject, contains an error which—as a denizen of Sussex and jealous of its honours—I beg permission to correct. In column 3 of the first page I read, "the courtly poet Waller lived on the west side of St. James's-street . . . . . Gibbon, the historian, died at No. 76." This he *certainly did not*, if the "History of Sussex," and a long inscription cut in a marble slab in Fletching Church, Sussex, are to be believed.

Every Sussex man and woman who has dipped at all into the history of the county, knows, and is proud to know, that the last resting-place of the Historian of Rome belongs to us. Gibbon came over from Lausanne on a visit to Lord Sheffield, at Sheffield-place, Fletching; and while there was seized with the illness of which he died. Lord Sheffield buried him, with all the pomp and ceremony he could command, in his own family tomb—an enclosed bay of the north aisle of Fletching Church; and on the front of the tomb, facing the congregation, he placed the engraved slab mentioned above, to tell to future ages how great he considered the honour of having been able to call Gibbon his friend.

If I were in Sussex, I would be delighted to send you the inscription in its entirety; but, being in London just now, I am separated from my authorities, and am forced to draw on my memory,—*not* on my imagination; so Mr. Timbs must not lay that flattering unction to his soul, and think I may be wrong after all. "Fletching Church and Gibbon's Tomb" are among the sights we delight in showing to visitors to our "Sussex wilds,"—now rapidly becoming "wilds" no longer.

*** That Gibbon is buried in Fletching Church we are aware: that he died at Lord Sheffield's we are not so certain. The statement in the "Handbook of London" is precise,—"Gibbon died January 16th, 1794, in No. 76 [St. James's-street] (south corner of Little St. James's-street), then Elmsley the bookseller's, now the site of the Conservative Club."

"CURIOSITIES OF LONDON."

I THANK you for the special care and tenderness with which you have treated the new and enlarged edition of my "Curiosities of London," in the *Builder* of Saturday last. Allow me to state, in reply to the omission you advert to in the Covent Garden Theatre article, page 782, that the burning of Smirke's Theatre, in 1856, is there mentioned, as well as the present theatre from the design of Mr. E. M. Barry, in 1858. JOHN TIMBS.

*** We had looked to the paragraph headed "Royal Italian Opera, Covent Garden Theatre," which did not give the information referred to.

MARKS ON DEALS.

SIR,—Would any of your correspondents kindly give particulars of the various marks by which the different kinds of deal are denoted? For instance, so that if a young beginner enters a timber-yard, by such and such kinds of mark he can go and select best and second Petersburg, &c., without being deceived by the yard foreman or others who are trying to effect the sales. Y. Z.

THE DEATH OF BARON MAROCHETTI.

WE heard with great regret that Baron Marochetti, the well-known sculptor, had died rather suddenly in Paris, on Saturday last. He was born at Turin in 1805, and was hence in the sixty-third year of his age. He was of French extraction, though born in Italy, and was educated in Paris, at the Lycée Napoleon, and afterwards with Bosio, a Parisian sculptor of some note. He completed his studies in Italy. In 1827 he returned to France, and in the same year exhibited a group, "A Girl playing with a Dog," for which a medal was awarded him. This group he presented to the King of Sardinia. In 1831 he exhibited his "Fallen Angel," and somewhat later he executed for the Academy of Arts of Turin a statue of Monsignor Mossi. Shortly after the revolution of February, 1848, Marochetti came to England, where he soon became known in art circles. In 1851 he contributed the model of a colossal equestrian statue of Richard Cœur de Lion to the Great Exhibition. This model brought the sculptor into very general notice in this country. The statue was afterwards executed in bronze, and placed close to the Palace of Westminster, the cost being defrayed by national subscription. For the citizens of Glasgow he executed an equestrian statue of the Queen, which was inaugurated in 1854. In that year he exhibited at the Royal Academy, "Love Playing with a Hare." In 1856 he executed the granite monument to the memory of the English soldiers slain in the Crimea. He also executed the statue of the late Duke of Wellington at Strathfieldsaye. One of his most recent works is the monument to Lord Clyde, in Waterloo-place. Marochetti was made a Chevalier of the Legion of Honour in 1839.

THE ARCHITECTURAL ASSOCIATION.

THE ordinary meeting of members was held on Friday evening (the 3rd inst.) at the House in Conduit-street, the President, Mr. R. Phéné Spiers, in the chair.

Mr. J. A. Bunker read a short paper on plumbers' work, in the course of which he touched upon the use of lead historically, chemically, and practically, showing that the Babylonians, Persians, and Egyptians used it for carrying and storing water, and that the invention of soldering was a very ancient one. In our own country the Saxons made lead a useful auxiliary in their buildings, especially for roofing, as also for the coffins of persons of distinction. In the Middle Ages, too, organ pipes were made of lead, and it was matter of tradition that the old St. Paul's Cathedral was accidentally burned by the carelessness of some workmen who were employed to solder the pipes of the organ. Having explained the manner in which lead was cast and milled, and the proper mode of soldering pipes, Mr. Bunker recommended that in using lead for gutter flats, flushings, &c., care should be taken to leave room for expansion of the metal, and that snow-boards should be used to protect roofs from the feet of careless workmen. In conclusion, he recommended students of architecture to pay especial attention to that portion of the specification which included the plumber's work, as want of attention in this respect often entailed much loss and inconvenience.

A member inquired whether Mr. Bunker could give the meeting any information with reference to the merits of sheet zinc (Vieille Montagne) as compared with lead. Objections had, he said, been made to lead on the ground that the chemical action of the atmosphere occasioned it to corrode; but the excellent condition of the roofs of some of our cathedrals and old parish churches would lead to an opposite conclusion. He also desired to know what was the best and easiest mode of preventing pipes from bursting in frosty weather. He had tried the experiment of allowing the tap to run very gently at such periods, and never had a pipe burst.

Mr. Bunker said he had come prepared to speak about lead, and not zinc, although he believed that the latter metal, if properly laid, was a very useful material. For his own part, however, he always recommended the use of lead, as although the cost was in the first instance greater than zinc, the old lead was always worth from 18s. to 20s. a cwt. He was unable to state why lead did not answer upon oak wainscot, but the solution might be found in the circumstance that oak contained a good deal of iron. In the old cathedrals it would be found that lead was not laid upon oak. With regard to the best mode of preventing lead pipes from bursting in frosty weather, he believed the most effectual remedy was to insert a stop-cock at the lower end of the service-pipe. As for allowing the tap to run, he feared the water companies would strongly object to such an expedient, however useful it might appear.

The Chairman, in calling attention to some drawings of lead finials and vanes in Continental churches, exhibited by Mr. Bunker, pointed out the beauty of the design, and the solidity of the material. It was, he thought, a pity that architects of our day did not endeavour (wherever practicable), to introduce lead work for finials and vanes, as there was a boldness and solidity about it, which recommended it for general adoption. In cases where it was necessary to use ornamental ironwork, it would be very desirable to make the design as bold and solid as possible.

It was stated that at the next ordinary meeting of the Association, a paper would be read by Mr. Henry Mathews, "On painting as a fine art, and its principles, and their full development in the works of the ancient masters."

LEICESTER CLOCK TOWER COMPETITION.

A DESIGN by Messrs. Goddard & Son has been selected after modifications. Messrs. Millican & Smith write:—

"The 'Haymarket Structure' Committee having received 106 designs in reply to their advertisement to architects, proceeded to select the best, and to assist them in the selection, obtained votes from the subscribers who visited the exhibition of the drawings at Messrs. Vice & Moon's: the votes so recorded gave ours a majority of twenty-four over any other of the 106 designs.

The Committee in their own voting again placed ours *first* among the three designs selected by them. At this point, for reasons best known to themselves, instead of awarding the premium according to their election, the Committee *broke faith* with *all the competitors* by handing over the final selection of one design to the Town Council, who, having chosen two out of the three designs submitted to them, appointed a sub-committee to issue further instructions for modified drawings from the two competitors. Against the unfair decision of the Council upon these modified drawings we now beg to protest.

We claim that our design is entitled to the first place, *by the choice of the subscribers* and *that of the original Committee*, and because, to comply with the modified instructions of the Council Committee, we had merely to omit the buttresses to the base and increase the height of the statues from 5½ ft. to 6 ft., whereas Messrs. Goddard's design required an entire remodelling of the base; the statues to be increased from 3 ft. 6 in. to 6 ft.; the canopies to be reduced from 12 ft. high to about 4 ft.; the clock dials to be increased from 2 ft. 6 in. to 4 ft.; and the roof to be reconstructed. Is it too much to assert that the design requiring the least alteration ought to have been selected by the Council?"

CHURCH-BUILDING NEWS.

Ovington.—The church of this little village has just been repaired and resented throughout. Last year the parishioners determined to put the church into a more seemly condition; and the rector took the opportunity to restore the chancel. Accordingly the stone-work has been cleaned and made good throughout, the windows and the old Norman doorway have been repaired, the tower has been thrown open to the church, the timbers of the roof freed from whitewash, and the walls (inside) replastered and brought to a warm sober tint. The floor has been laid with tiles in ornamental patterns. The nave is furnished with low open benches. All the fittings are of oak. The cost of the work in the nave has been about 250*l*. The whole of the work (except a stove supplied by Mr. Gidney) has been carried out by Mr. Hubbard, of Dereham, builder, under the direction of Mr. E. J. Tarver, of London, architect.

Leigh.—Not content with what has been done in the way of restoration to the parish church, the parishioners recently decided on doing something more towards refitting it, and also that it should take the form of a testimonial to their rector, the Rev. H. B. Cocks. Accordingly a subscription-list was started, which was headed by Earl Somers with 25*l*. and the Countess Somers 20*l*., and soon a sufficient sum was raised to purchase a reredos, a pulpit, stalls for the choir, and a brass lectern. These articles have now been placed in the church. The reredos is of freestone, having in the centre, over the communion-table, a Greek cross on a diaper ground within a sunk circle, and the passion-flower

carved in the centre of the cross. The pulpit is of oak on stone steps, and has carved on it a representation of the Ascension, &c. The stall-ends are also carved, the whole of the above work being by Mr. Forsyth, of Worcester. Messrs. Hardman, of Birmingham, supplied the brass lectern.

Bedale.—A new church, to replace the old one, has just been erected at Thornton Watlass, four miles from Bedale. The tower of the old edifice, however, has been retained, and forms part of the new edifice, which has been erected from designs and plans of Mr. G. F. Jones, of York, architect. The style of architecture adopted is Early English; and the edifice consists of a nave and north aisle, north and south transepts, and a chancel, the porch being on the south side near to the old tower, which is about 80 ft. in height. The windows are filled with cathedral glass, and have coloured margins, except one window, which is of stained glass. The windows in the north aisle are lancets, and those in the transepts are of three lights. The west window underneath the tower is of three lights, with plate tracery, and has been restored by Lady Milbank. The east window is a triplet, with plate tracery, and Mr. J. Pulleine, of Clifton Castle, has had it filled with stained glass. The church will accommodate about 250 persons, for whom in the nave, north aisle, and transepts, open seats of varnished deal are provided. The chancel is fitted up with oak seats, having moulded and carved ends. The cost of the erection of the edifice has been about 1,800*l.*

Hoole.—The small church of Hoole has been opened for divine service. The foundation-stone was laid in the spring of last year, by Earl Grosvenor, M.P., and since that period great difficulties have been experienced in raising the necessary funds. The amount promised having reached the sum of about 2,500*l.*, architects were invited to furnish plans of the same, and Mr. Daukes, of London, proved the successful competitor. He estimated the cost at 4,600*l.*, including spire, or 3,500*l.* without. The edifice stands by the side of Hoole-road, in close proximity to Newton-lane. It is in the Transition style, and is built of the red sandstone of the district. It consists of a nave, chancel, and north aisle, with organ-chambers at the east end. The nave is separated from the aisle by a row of pointed arches. There is a tower at the south-west angle of the building (upon which the spire may be placed), the main entrance being from the Hoole-road, through the north porch. The church will accommodate 600 persons, but it is so built as to admit of a south aisle being added.

Miscellanea.

COMPENSATION. — On the 6th inst. Mr. Humphreys, the Middlesex coroner, presided over a special jury in a compensation case, "Clayton *v.* The Metropolitan Railway," at the Sheriffs' Court, Red Lion-square. The premises were not required by the company, but in making the inner circle the water damaged the plaintiff's oven, and he required the company to take the whole premises. The shop had been closed a month, and the company in possession. It was suggested that the claimant could return, but he declared that his business had been destroyed by the company, and he claimed three years' profits. He made, he said, 12s. on a sack of flour. After several witnesses had been called, a verdict was agreed upon for 300*l.*

HEMEL HEMPSTEAD.—The High Bailiff held a court of *pie poudre* in the Town-hall, to receive the report of the committee appointed to erect a new market-house, &c. The bailiff produced a coloured drawing of the exterior of the proposed building, and of the Town-hall, with plans of the internal arrangements. The building, he said, would be in architectural conformity with the Town-hall, and would be surmounted by a turret, on which there would be a market bell. The corn-lofts would be 30 ft. by 24 ft. The plans had been unanimously adopted by the committee, and he calculated that the shop, cellarage, &c., would yield an income of about 80*l.* a year. After considerable discussion, the following resolution was agreed to:—

"That the plan produced be adopted, and that the architect be requested to give his special attention to the possession of the most efficient means for the delivery and discharge of grain to and from the corn-loft, and that the elevation of the shop front should be in accordance with, instead of subordinate to, the designs of the main building."

SELSEY, SUSSEX.—A new chapel, 46 ft. by 31 ft., belonging to the people called "Bible Christians," was opened for divine service on the 26th ult., when a sermon was preached by the Rev. J. Horwill, of Southsea. The proceeds of the opening services are nearly 50*l.* The plans of the above building were prepared by Mr. E. J. Smith, of Portsea, architect. The structure is Gothic, and has flint walls, with white brick quoins.

ROAD ROLLERS.—We observe a patented form of this great desideratum, among many other useful implements, illustrated in a catalogue issued by Messrs. Amies, Barford, & Co., of Peterborough, ironfounders, machinists, and agricultural implement makers. It is a substantial and weighty-looking article certainly. It is made of cast metal cylinders, laid alongside of each other in rings, each 12 in. broad: so that the requirements of road surveyors, contractors, and others who wish to have one very heavy roller can be met to any extent, as to breadth, and the same as to thickness. The outer rim of the one illustrated was about 4 in. thick, of solid iron. It can be fitted with a turntable, which allows the horses to turn with the frame-work without turning the weighty roller. Prices seem to vary from 65*l.* for a 5-ton one to 115*l.* for a 9-ton one. No steam-power is required or used with this road-roller.

FRIENDLY SOCIETIES' ASYLUM.—The annual dinner to the inmates of the Metropolitan Benefit Societies' Asylum, Ball's Pond-road, was given on New Year's day, Mr. W. G. Leftly, trustee, presiding. As we have said before, "this is the only institution in the kingdom for the special benefit of members of friendly societies. To the credit of the metropolis be it said, that a few working men in it founded the asylum in 1829." In proposing success to it, and the health of the inmates, the chairman said that 184 persons had been admitted, of whom 111 had died, and thirty-eight now remained. There was accommodation for sixty-nine married couples, but so many could not be elected until the building debt of over 3,000*l.* was paid off, and it behoved every society and member to aid in making that good, when the Endowment Fund of 7,500*l.* would be available for paying increased annuities to the inmates.

BELL CHIMING AT GREAT BEDWYN.—A simple and ingenious arrangement, of which some account has already been given in the *Builder*, has been adopted for chiming the fine old bells of Great Bedwyn Church. It is that invented by the Rev. H. T. Ellacombe, rector of Clyst St. George, Devon, and has been used for some years in various churches in the West of England, but is little known elsewhere. It brings all the bells under control in the body of the church, where they are chimed for service with perfect ease by one man or boy. Being independent of the belfry, it interferes in no way with the ringers when a peal is to be rung. The chiming gear being distinct from the clappers, it does away with the destructive practice of "clocking" the bells, or tying the clappers, by which numbers of fine bells are cracked. The apparatus has been put up by Mr. Hooper, of Woodbury, near Exeter, at a cost to the parish of about 1*l.* per bell, and his travelling expenses.

ATROCIOUS ATTEMPT TO BLOW UP THE WORCESTER GUILDHALL.—A meeting of 400 special constables was about to be held in the Town-hall, Worcester, and the hall-keeper, as was most fortunately usual with him, went without any light to turn on the gas, when he found from a hissing noise that something was wrong, and he instantly turned off the gas again. He obtained assistance, and on examining the meter it was ascertained that some dastardly miscreant had removed and taken away the plug of the main service pipe connecting the main with the meter. Workmen were fetched from the gas-works, who gave it as their opinion that whoever had removed the plug had a thorough knowledge of the construction of gas meters. The pipe out of which the plug was taken is an inch pipe, and if its removal had not been found out sufficient gas would have escaped in five minutes to have blown the front of the hall out. It is presumed that this attempt was made with the intention of stopping the meeting of the special constables, if it were not ignorantly intended to destroy the constables themselves, which, however, it could not have done, as the hall would have been destroyed before they could have assembled.

VICTORIA PARK.—The bathing lake in Victoria Park is to be made about double its present size. The First Commissioner of Public Works has decided to follow the precedent established in Lancashire during the cotton famine and under the Public Works Act. The work will be offered to men who cannot just now find any other employment, and they will be paid according to the amount of work done.

RINGWOOD TOWN HALL.—The old Town Hall, or Market House, which has stood for nearly a century and a half, has been destroyed, and the bricks carted away. The removal of the dingy old building is an improvement to the town. The new Town Hall has been built after plans by Mr. Wyatt. It contains a justice-room, and a corn-exchange, suited for a ball and concert room; while below are two other rooms for general purposes, adapted for reading, club, or lecture rooms.

ST. STEPHEN'S MEMORIAL CHURCH, DELHI.—This little church was consecrated by the Bishop of Calcutta, the Rev. Dr. Milman, on the 17th of October. The building is situated in one of the most populous thoroughfares of the city of Delhi, immediately facing the Queen's garden. The interior is decorated, and the walls are covered with scrolls, symbols, and texts. The inscriptions are in Persian character as well as in English. The service and sermon were in the Oordoo language, which the bishop has qualified himself for reading and preaching in.

ANSON'S "DRAMATIC ALMANACK."—The "Dramatic Almanack" for 1868, by Mr. J. W. Anson, of the Adelphi Theatre, besides containing a very large amount of information of value to those who are connected with the stage or interested in it, includes several amusing articles on Macklin, Astley, and Wombwell. We have not checked the correctness of the facts given in the various lists, but the intention is excellent. Mr. Anson is the secretary of the Royal Dramatic College; the honorary secretary of the Dramatic, Equestrian, and Musical Sick Fund; and is in other ways honourably known.

THE WORCESTER DIOCESAN ARCHITECTURAL SOCIETY.—The annual meeting of the members of this society has been held in the Council-room of the Natural History Society, Worcester. The chair was occupied by Mr. G. J. A. Walker, and there were also present the Revs. T. G. Curtler, W. W. Douglas, H. G. Pepys, G. S. Munn, W. Thorn, Messrs. H. Holden, E. Lees, and J. S. Walker. The proceedings having been opened, Mr. Walker proceeded to read the report, which was of considerable length, and commenced by congratulating the members on the appointment of one of their body to the episcopate, and then went on to speak of the excursions of the society, and the architectural doings at Worcester, &c. The report was adopted, and the whole of the officers reappointed. It was agreed that Earl Beauchamp be requested to take the chair at the meeting to be held on the 14th of January, when Mr. Beresford Hope will read a paper on the Cathedral.

THE PENN-SQUARE BUILDINGS, PHILADELPHIA.—A great day has dawned upon Philadelphia, says the *Journal* of the Franklin Institute of Pennsylvania. It is proposed to give to her libraries and museums enlarged space. At the last meeting of the councils of the city, the resolution to ask the Legislature to grant the four small public parks or squares, situated at the corner of Broad and Market Streets, and formerly the site of the waterworks of Philadelphia, to the following named institutions,—The American Philosophical Society, the Philadelphia Academy of Natural Sciences, the Franklin Institute of Pennsylvania, the Philadelphia and Loganian Libraries, and the School of Design,—was agreed to, without deliberation and without debate. Such a cluster of buildings, it is added, with an unequalled library, a vast store-house of specimens in natural history, an immense number of models of mechanical inventions, a complete catalogue of philosophical apparatus, great galleries of paintings and statuary, would afford students in every department of literature, science, and arts all the facilities requisite to the most elaborate research. Within a compass of 1,000 ft. square, he will look upon the labours of Audubon and Wilson, Benjamin Franklin and Dr. Robert Hare, and of hundreds of others, who spent their lives, retired from public gaze, in building up these great collections of fossils, minerals, shells, plants, and models.